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ABSTRACT

The U.S. Department of Labor has identified 114 worker trait groups, into which all jobs can be placed on the basis of the extent to which each job is involved with working with information (Data), working with people (People), and working with tools, machines, or materials (Things). Jobs grouped under this system also require similar worker qualifications and temperament. The Guide describes the 114 groups under the same headings as the Dictionary of Occupational Titles (D.O.T.), Volume 2; but the information, while essentially the same, has been re-written as a career planning aid for students or others without specialized training. The two-page format for each of the worker trait groups consists of three sections: (1) identification, including examples of workers in the group and the level of their involvement with data, people, and things; (2) a description of the group, including the work performed, qualifications, helpful personal characteristics and experiences, and necessary training; (3) a qualifications profile for workers, including working conditions, training time required by different jobs in the group, and a list of necessary aptitudes; and (4) additional information including cross-referencing with the D.O.T. All the qualifications are explained further in the guide's appendixes. (AJ)

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CAREER INFORMATION

Guide for Exploring Careers Through Worker Traits

AN ADAPTATION OF THE D.O.T. WORKER TRAIT GROUPS

Career Decision-Making Program

Appalachia Educational Laboratory
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Preface

This *Guide For Exploring Careers Through Worker Traits* has been designed for use in the Career Decision-Making Program developed by the Appalachia Educational Laboratory (AEL). However, it has the potential for much broader use. Counselors interested in helping students in educational and vocational planning, teachers interested in relating their subject matter area to career fields or in planning class activities related to career development, students and adults seeking occupational information – all will find it an excellent source of occupational information. This *Guide* may be used by itself, but will have maximum value when used in an organized program of career exploration and decision-making.

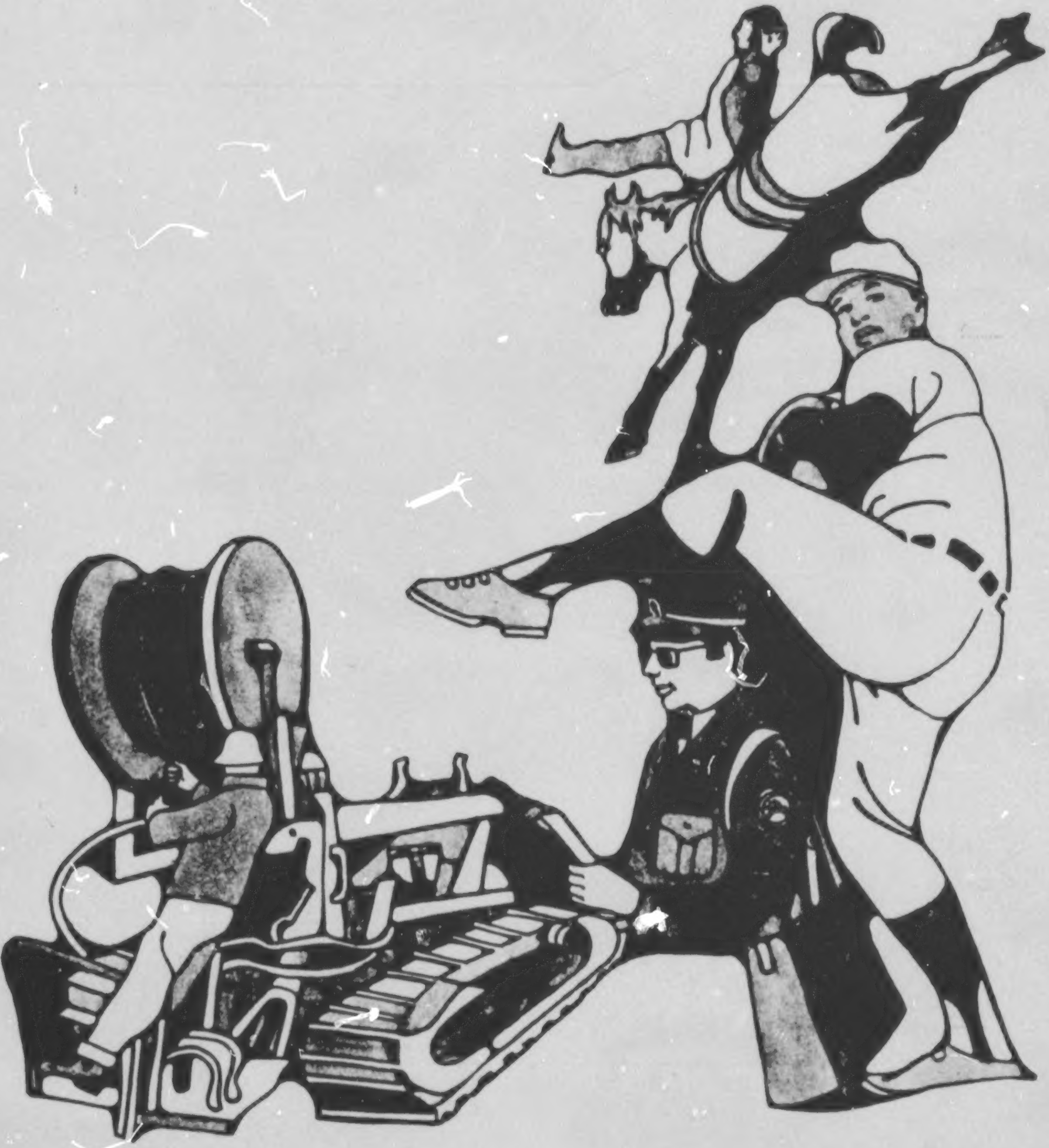
The AEL Career Decision-Making Program's career information system has been structured around the system provided by the *Dictionary of Occupational Titles (DOT), Third Edition* . Although the *DOT* was developed primarily for use by professionals in the U.S. Department of Labor and other governmental agencies, it has been widely used by school counselors as an occupational information reference. The *DOT* provides the most widely used system for the classification of occupational information; however, it was not intended, either in language or format, for use with junior and senior high school students. The Career Decision-Making Program materials utilize the *DOT* structure and content, but are written in a language and format appropriate for student use. This *Guide* is a revision of the Worker Trait Group and Appendices sections of the *DOT*, Volume II.

Mrs. Louise Lucas, Associate Educational Development Specialist in the Appalachia Educational Laboratory's Career Decision-Making Program, served as Senior Editor in producing the *Guide*. Mr. and Mrs. John Odgers served as outside consultants and editors. A special note of credit goes to Appalachia Educational Laboratory Diffusion Specialists Edward Morris, Ray Brack, and David Compton for editing, design, and production assistance.

Hopefully, this *Guide* will assist today's youth in the critical process of career exploration and decision-making, thus making it possible for them to become aware of and utilize their potential in seeking, identifying, and pursuing rewarding careers.

DAVID W. WINEFORDNER, DIRECTOR
CAREER DECISION-MAKING PROGRAM
APPALACHIA EDUCATIONAL LABORATORY, INC.

INTRODUCTION TO THE USER



INTRODUCTION TO THE USER

Certainly the most important task you face as you plan for the future is that of getting the background necessary for wise career planning. Achieving career success involves much more than getting and holding a job. It involves selecting a field of work that requires qualifications which you possess or can acquire. It involves progressing from a beginning job to higher level jobs as you gain knowledge and experience. It involves doing work that is satisfying to you and gives you an income which meets your needs.

Wise career planning is not easy. It is a long process and involves many different decisions made over a period of years, while you are in school and throughout your years of employment. Beginning your planning now should increase your chances for a career which you will enjoy and in which you can be successful. To be successful in career planning, you must seek to accomplish the following four objectives:

- First, learn as much as possible about the world of work — what it is like, the job opportunities that may be open when you are ready for employment, the qualifications (knowledge, skills, and personal qualities) required by the jobs you are considering, and how skill development and work experience can increase your opportunities for advancement.
- Second, learn as much as possible about yourself — your likes and dislikes, your strong points and weaknesses, your vocational interests, your values and standards, and the types of things you can learn or do best.
- Third, develop the ability to make sound educational and vocational decisions, based on self-understanding and on your knowledge of the world of work, including related educational opportunities and requirements. You will probably modify your plans a number of times as you gain more knowledge about yourself and about opportunities open to you.
- Finally, make your own career decisions and accept the responsibility for making them. No one else should be permitted to make such important decisions for you, although others may help you get the necessary background for decision-making. These include your parents, teachers, counselors, and many interested others.

GUIDE FOR EXPLORING CAREERS THROUGH WORKER TRAITS: What is it and how can it help you?

Career exploration and decision-making programs, such as the one of which this *Guide* is a part, are available to help both youth and adults to achieve these important objectives. This *Guide* has been prepared to help you achieve the first of the objectives – to learn as much as possible about the world of work.

Did you know that there are over 21,000 different occupations in which people in the United States earn their living? All of these occupations are described in the 1965 edition of the *Dictionary of Occupational Titles* (*DOT*)published by the U.S. Department of Labor. Almost a third of these jobs did not exist when the previous edition of the *Dictionary* was published in 1949.

Dictionary of Occupational Titles

For anyone to consider every job listed in the *DOT* when planning his career is an impossible task. Fortunately, this is not necessary, since jobs can be grouped in several different ways to help those who want to learn more about them. The *DOT* uses three different methods for grouping occupations:

1. By products or services provided and processes or materials used (Industrial Arrangement).
2. By type of work performed (Occupational Arrangement).
3. By worker qualifications required (Worker Trait Arrangement).

This *Guide* explains the third method, which organizes jobs into groups which require similar worker qualifications. These are called **Worker Trait Groups.** The U.S. Department of Labor has identified 114 Worker Trait Groups, into which all jobs can be placed on the basis of the extent to which each job is involved with **Data** (working with information), **People** (working with people), and **Things** (working with tools, machines, or materials). Jobs grouped under this system also require similar worker qualifications, such as training time, general educational development, interest, aptitude (ability to learn), and temperament (ability to adjust to different working conditions). Because of this, it is a good system to use to determine how well your personal characteristics match the requirements of career fields or specific jobs you may be considering. When using the *Guide* for this purpose, you should keep in mind that the level or amount of any qualification which is shown for a particular Worker Trait Group is the amount required for satisfactory or average performance. Some successful workers in this group will have higher qualifications and some will have lower qualifications than those shown.

The 114 Worker Trait Groups which are described in this *Guide* are the same as those described in Volume II of the *Dictionary of Occupational Titles*. They are written in the same form, have the same headings, and contain essentially the same information. However, when the *DOT* was written, it was prepared for professional and technical use rather than for use by school students or others without specialized training. In order to make the information contained in the *DOT*, Volume II, more useful to you, this *Guide* has been written in a form that makes it easier to read, understand, and use in career planning.

After you become familiar with the Worker Trait Groups and the information contained in the Appendices, you will find that the *Guide* can be helpful to you in the following ways:

- To gain a general understanding of the world of work.
- To learn more about particular jobs in which you may be interested.
- To learn about other jobs which are similar to particular jobs in which you may be interested.
- To identify the Worker Trait Groups which relate to the things you know about yourself, such as your special interests and abilities, or the type of work you want to do.
- To study and explore groups of jobs so that you become familiar with the requirements of workers and the necessary training and experience you may need.

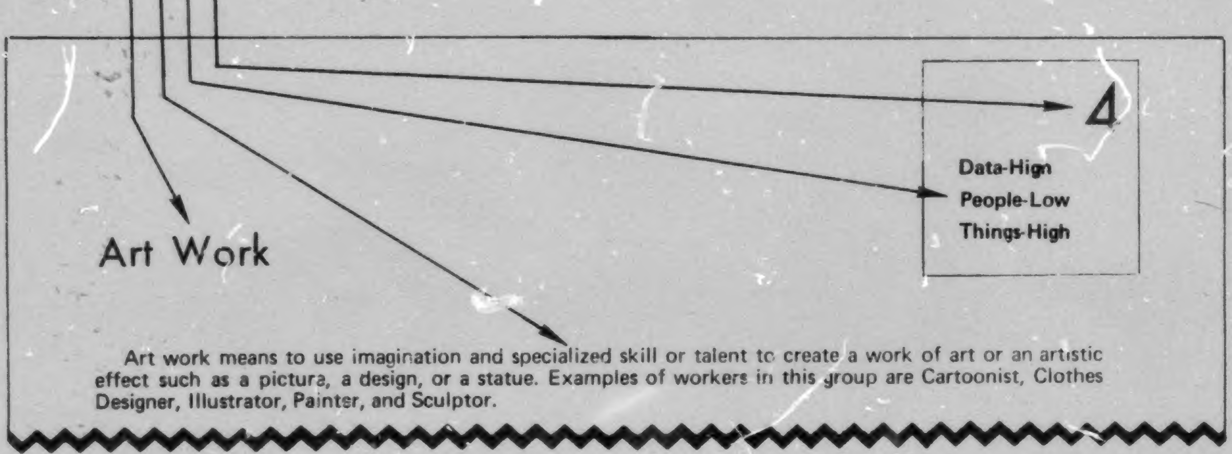
GUIDE FOR EXPLORING CAREERS THROUGH WORKER TRAITS: How is it organized?

This *Guide* describes the 114 Worker Trait Groups which can be used for exploring or gaining an understanding of the world of work. There are two major sections in this *Guide*. In addition to the Worker Trait Group descriptions, it contains eight Appendices. The Appendices add to the information contained in certain sections of the Worker Trait Groups.

Worker Trait Groups

In order to help you locate specific information about career fields, each of the 114 Worker Trait Groups described is written in exactly the same way. The following examples break one of the Worker Trait Group descriptions into sections to help you understand their organization and content.

I. Identification of the Worker Trait Group, including:
   - Title of Worker Trait Group
   - Brief summary statement and examples of workers in the group
   - Level of involvement with Data-People-Things (High, Average, or Low)
   - Number of Worker Trait Group



Art Work

4

Data-High
People-Low
Things-High

Art work means to use imagination and specialized skill or talent to create a work of art or an artistic effect such as a picture, a design, or a statue. Examples of workers in this group are Cartoonist, Clothes Designer, Illustrator, Painter, and Sculptor.

II. Description of the group, including:

- What you would do as a worker in this field
  - Qualifications you would need
    - Personal characteristics and experiences which might help you decide if you should explore this field
      - Preparation (training and experience) you would need

WORK PERFORMED – What would you do as a worker in this field?

In this field, you would express original ideas, feelings, and moods by creating paintings, drawings, statues, or other objects or designs. There are two broad types of art work: the fine arts and the commercial arts.

The fine arts, including portrait and mural paintings, sculpturing, ceramic work, and mosaic work, are produced to express the feelings of the artist rather than at the order

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- working with your hands to make things
- winning an award in an arts or crafts exhibit
- drawing or sketching people, cars, animals, or other

WORKER REQUIREMENTS – What qualifications would you need?

To work in either commercial or fine arts, you need to recognize and appreciate beauty, as well as to have the imagination to create new designs for pieces of art. To do this, you would need to know how to combine colors and lines. It would also be important for you to be able to see

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

A diploma from a two or three-year art theory and practice program of a vocational school, art school, or institute is usually enough preparation for beginning jobs in the commercial arts. You might find employment with printing and publishing houses, advertising agencies, com-

III. Listing of the qualifications needed by workers in this group. On the bottom of the first page under the "Qualifications Profile" section you will find the following:

- The kinds of working conditions to which workers in this group must adjust
  - The types of work activities which workers in this group usually prefer
    - The length of training time required by different jobs in this group

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

- Rating information by using personal judgment.
- Interpreting feelings, ideas, or facts from a personal point of view.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

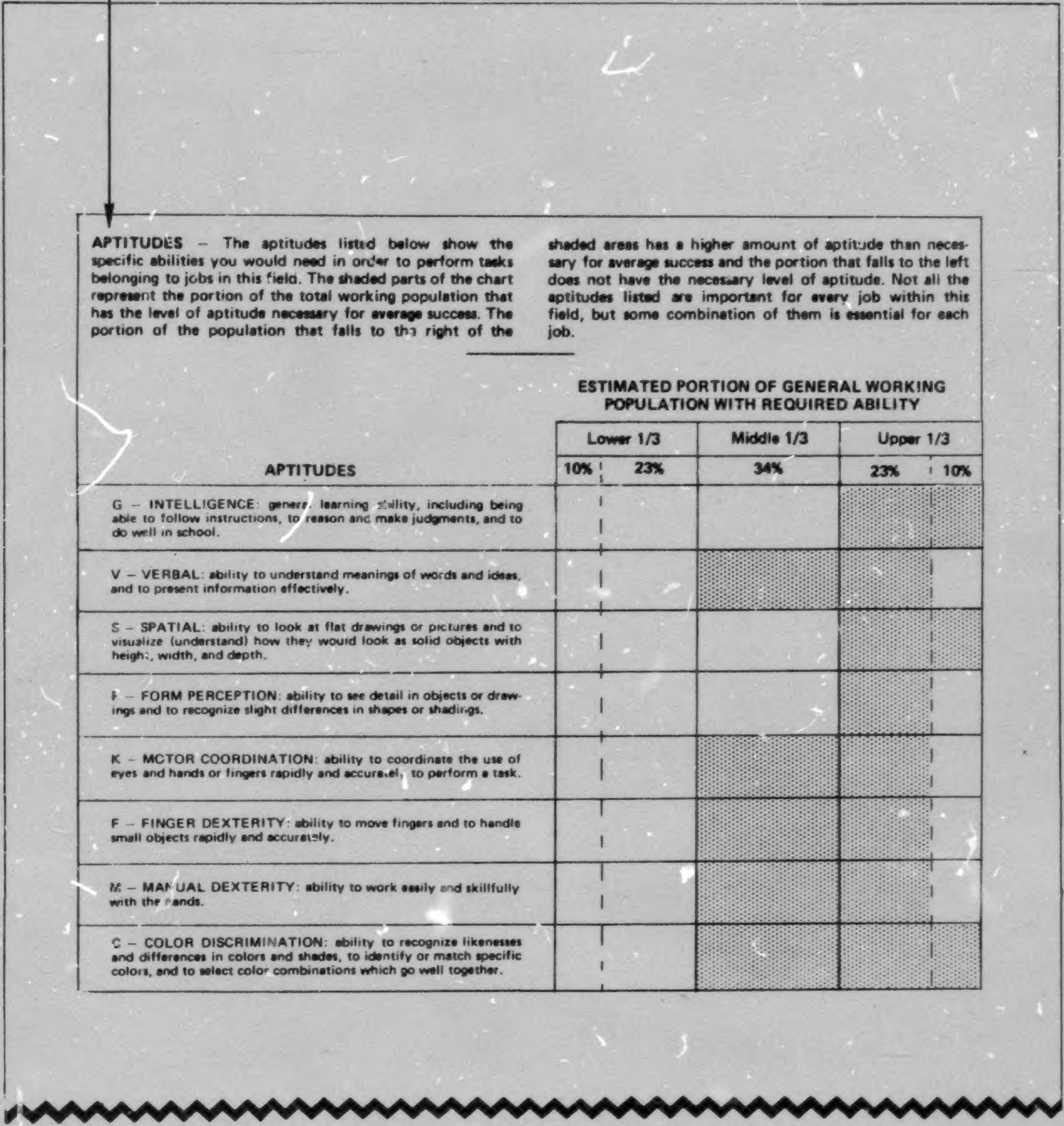
- Activities concerned with people and the communication of ideas – rather than – activities dealing with things and objects.
- Activities of an unusual, indefinite nature which require creative imagination – rather than – activities of a routine, definite, organized nature.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

- Over 6 months up to and including 1 year.
- Over 2 years up to and including 4 years.
- Over 4 years up to and including 10 years.

On the top of the second page you will find:

- An explanation and list of the aptitudes neded by workers in this group along with the percentage of the working population estimated to have those aptitudes.



APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

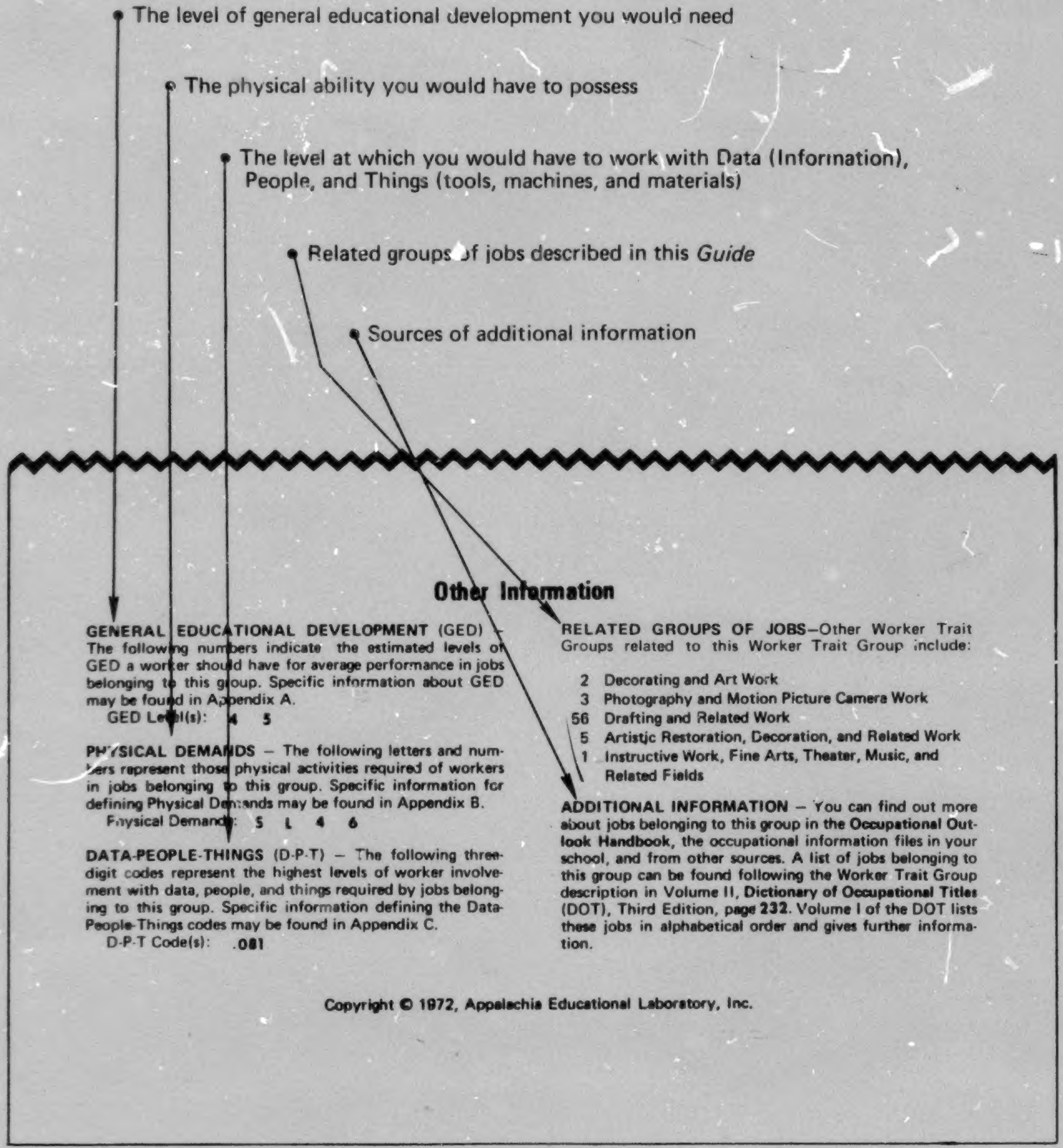
ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	▨
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.			▨	▨	
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.				▨	▨
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.				▨	
K – MOTOR COORDINATION: ability to coordinate the use of eyes and hands or fingers rapidly and accurately to perform a task.			▨	▨	
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.			▨	▨	
M – MANUAL DEXTERITY: ability to work easily and skillfully with the hands.			▨	▨	
C – COLOR DISCRIMINATION: ability to recognize likenesses and differences in colors and shades, to identify or match specific colors, and to select color combinations which go well together.			▨	▨	▨

All of these qualifications are fully explained in separate Appendix sections of the *Guide*: Temperaments (Appendix D), Interests (Appendix E), Specific Vocational Preparation (Appendix F), and Aptitudes (Appendix G).

IV. Additional worker qualifications which must be considered are: (1) the general educational development required, (2) the physical abilities needed to meet physical demands of the job, and (3) the level at which a worker is involved with Data, People, and Things. This information is discussed in the sections under "Other Information" and is further explained in the Appendix sections: General Educational Development (Appendix A), Physical Demands (Appendix B), and Data-People-Things (Appendix C).

"Other Information" also includes references to sources of information which can be found (1) in other Worker Trait Groups in this *Guide* which are related to the one you are studying, and (2) in other publications. On the bottom of the second page you will find:



- The level of general educational development you would need
- The physical ability you would have to possess
- The level at which you would have to work with Data (Information), People, and Things (tools, machines, and materials)
- Related groups of jobs described in this *Guide*
- Sources of additional information

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **4 5**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **5 L 4 6**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.081**

RELATED GROUPS OF JOBS–Other Worker Trait Groups related to this Worker Trait Group include:

2	Decorating and Art Work
3	Photography and Motion Picture Camera Work
56	Drafting and Related Work
5	Artistic Restoration, Decoration, and Related Work
1	Instructive Work, Fine Arts, Theater, Music, and Related Fields

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **232**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

Appendices

Seven of the Appendices give information that explain the worker qualifications that are referred to in the descriptions of the Worker Trait Groups. These are:

• Appendix A	General Educational Development
• Appendix B	Physical Demands
• Appendix C	Data-People-Things Hierarchies
• Appendix D	Temperaments
• Appendix E	Interests
• Appendix F	Specific Vocational Preparation
• Appendix G	Aptitudes

You should study each Appendix so that you become familiar with all of the types of worker qualifications. This will help you to understand the qualifications required by the jobs within individual Worker Trait Groups.

Appendix H, How to Use the *Dictionary of Occupational Titles (DOT),* describes how you can use Volumes I and II to identify jobs belonging to each WTG, and how you can locate short descriptions of these jobs.

WORKER TRAIT GROUPS

Instructive Work, Fine Arts, Theater, Music, and Related Fields

Instructive work, in this case, means to help others to gain the knowledge and skills required for working with a particular form or method of creative expression (art). Fine arts is a term used to describe those forms of art, such as painting and sculpturing, which are concerned with the creation of beautiful or interesting objects. Examples of workers in this group are Art Teacher, Stage Director, Dramatic Coach, Choreographer, Dancing Instructor, and Music Teacher.

WORK PERFORMED – What would you do as a worker in this field?

Work in this field involves helping others to develop the knowledge, skills, and understandings necessary to work in an art form such as music, drama, dance, painting, or sculpture. Instruction given in this field may be either general or specific.

General instruction would involve giving your students background information about an art form, including its history and the basic skills or techniques involved. In specific instruction, you would apply your personal point of view, your artistic skills, and your teaching ability to help students develop their creative or performing skills.

WORKER REQUIREMENTS – What qualifications would you need?

Success in this field of work would require you to: (1) develop knowledge and skills in the area to be taught; (2) gain the necessary training in teaching techniques; (3) be able to answer questions and plan organized programs of instruction; (4) have the ability to see details; (5) appreciate the beauty found in art forms; (6) be creative in using your imagination; (7) communicate ideas; (8) have a feeling for form, color, and expression as they apply to a particular art form; and (9) recognize and respect artistic talent in others.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- success in high school, college, or private art courses
- training in music or dance
- participation in plays or recitals
- liking to work with people
- skill in expressing ideas in speaking

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?.

The area of instruction, such as dance, music, drama, or fine arts, affects the type of training required as well as how and where this training is received. Graduation from a college or university with a degree in an art form might be required. Another possible training method is the completion of a study program with either a private instructor, or in a special setting, such as a playhouse, or a school of art, music, dance, or drama. Experience gained through working with local or summer theater groups, either in playing minor roles or working backstage, would be considered part of your training. Other valuable experiences include successful participation in musical talent contests, and successful auditions (tryouts) for performances with orchestras, theater groups, or dance companies.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

1 Performing a variety of duties which may often change.
4 Directing, controlling, and planning an entire activity or activities of others.
5 Dealing with people in actual job duties beyond giving and receiving instructions.
7 Influencing people's opinions, attitudes, or judgments about ideas or things.
9 Rating information by using personal judgment.
X Interpreting feelings, ideas, or facts from a personal point of view.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

5 Activities which bring recognition or appreciation by others.
6 Activities concerned with people and the communication of ideas.
8 Activities of an unusual, indefinite nature which require creative imagination.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

7 Over 2 years up to and including 4 years.
8 Over 4 years up to and including 10 years.
9 Over 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

Aptitudes	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	▨
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.				▨	
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.		▨	▨		
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.		▨	▨		
C – COLOR DISCRIMINATION: ability to recognize likenesses and differences in colors and shades, to identify or match specific colors, and to select color combinations which go well together.	▨ *		▨ *		▨ *

*Different levels of color discrimination are required by different jobs in this group.

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicates the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 5 6

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: S L 4 5 6

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .028

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

4 Art Work
44 High School, College, University, and Related Education
62 Creative Entertainment Work, N.E.C.
63 Dramatics
66 Rhythmics

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page 226. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

2

Data-High
People-Average
Things-High

Decorating and Art Work

Decorating means to arrange or design something that arouses interest or attracts attention and is pleasing to view. Examples of workers in this group are Interior Designer and Decorator, Movie Set Decorator, and Advertising Display Designer.

WORK PERFORMED – What would you do as a worker in this field?

If you select a career in this job group, you would be concerned with planning and making artistic arrangements of objects and materials, or with making decorative designs. These might be used for such purposes as to display clothing, improve the appearance of rooms in buildings and houses, or create advertising displays or movie scenery. Your work might include talking with customers to persuade them to use your services, or dealing with salesmen to buy needed materials and supplies. You also might be in charge of people working with you or for you in carrying out an assignment.

WORKER REQUIREMENTS – What qualifications would you need?

To be a good decorator or designer you must be aware of what is beautiful and pleasing to others. You would need good judgment and skill in order to make the best possible use of available space, materials, and color combinations in a way that will be attractive to others. In addition, you would need skill in using your arms, hands and fingers. Decorating and art work also require being able to communicate with people and influence their opinions.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- completing courses in art or sewing
- doing some type of art work such as designing posters
- sewing or making gifts, using your own ideas
- decorating your room at home, or a room for a party
- making a display for an exhibit

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Graduation from a recognized art school or college is usually required for a job in this field. Part-time training in such subjects as fashion design, interior decorating, and commercial art will sometimes be accepted in place of a degree. Large organizations such as department stores or advertising agencies offer special training programs.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

4 Directing, controlling, and planning an entire activity or activities of others.
5 Dealing with people in actual job duties beyond giving and receiving instructions.
7 Influencing people's opinions, attitudes, or judgments about ideas or things.
8 Rating information by using personal judgment.
9 Interpreting feelings, ideas, or facts from a personal point of view.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

2 Activities involving business contact with people.
6 Activities concerned with people and the communication of ideas.
8 Activities of an unusual, indefinite nature which require creative imagination.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

7 Over 2 years up to and including 4 years.
8 Over 4 years up to and including 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	▨
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.				▨	▨
N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.			▨		
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.			▨	▨	
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.			▨	▨	
K – MOTOR COORDINATION: ability to coordinate the use of eyes and hands or fingers rapidly and accurately to perform a task.			▨	▨	
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.			▨	▨	
M – MANUAL DEXTERITY: ability to work easily and skillfully with the hands.			▨		
C – COLOR DISCRIMINATION: ability to recognize likenesses and differences in colors and shades, to identify or match specific colors, and to select color combinations which go well together.				▨	▨

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 5

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: S L 4 5 6

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .031 .051 .061

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

3 Photography and Motion Picture Camera Work
4 Art Work
5 Artistic Restoration, Decoration, and Related Work
37 Craftsmanship and Related Work
56 Drafting and Related Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page 228. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

3

Data-High
People-Average
Things-High

Photography and Motion Picture Camera Work

Photography is the art of photographing people, objects, or materials with still or motion picture cameras. Examples of workers in this group are News, Portrait and Commercial Photographers and Television and Movie Cameramen.

WORK PERFORMED – What would you do as a worker in this field?

In this field, your job would be to take pictures or make movies of people and things. You might use a still camera or a motion picture camera. If you used a television camera your work might be seen on many television screens at the same time. An important part of photography involves arranging people or things in ways that make them look their best in pictures. You would often need to think of special ways to make a picture or movie artistic or attractive.

WORKER REQUIREMENTS – What qualifications would you need?

To be a professional photographer, you need the kind of imagination that allows you to see a picture in you mind before you take it with your camera. You should have a sense of what will make a picture attractive and know how to bring this out in your photography. These skills depend upon having an eye for the colors, shapes, and arrangements of things that are to be photographed.

Because jobs in this field often call for quick reactions, your eyes and hands should be well coordinated (able to work together). Since you would be taking pictures of people or for people, you ought to be able to get along well with them.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- taking pictures and keeping an album, scrapbook, or slide collection
- being a photographer for the school paper or yearbook
- taking home movies
- being a member of a camera club
- collecting examples of the work of famous photographers

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

There are several ways you can become a photographer or cameraman. One is to take up photography or camera work as a hobby; another is through experience in school or in military service. College courses in photography and newspaper or magazine theory and practice provide excellent training. Beginning photographers usually start with simple assignments and work up to more complicated, artistic ones.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

9 Rating information by using personal judgment.
X Interpreting feelings, ideas, or facts from a personal point of view.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

6 Activities concerned with people and the communication of ideas.
9 Activities which are nonsocial and involve the use of machines, processes, or methods.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

7 Over 2 years up to and including 4 years.
8 Over 4 years up to and including 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.				▨	
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.				▨	
K – MOTOR COORDINATION: ability to coordinate the use of eyes and hands or fingers rapidly and accurately to perform a task.			▨		
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.			▨		
M – MANUAL DEXTERITY: ability to work easily and skillfully with the hands.			▨		
C – COLOR DISCRIMINATION: ability to recognize likenesses and differences in colors and shades, to identify or match specific colors, and to select color combinations which go well together.		▨	▨	▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **4 5**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **L 4 5 6**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.062**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

2	Decorating and Art Work
4	Art Work
108	Motion Picture Projecting, Photographic Machine Work, and Related Activities
5	Artistic Restoration, Decoration, and Related Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **230**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

4

Data-High
People-Low
Things-High

Art Work

Art work means to use imagination and specialized skill or talent to create a work of art or an artistic effect such as a picture, a design, or a statue. Examples of workers in this group are Cartoonist, Clothes Designer, Illustrator, Painter, and Sculptor.

WORK PERFORMED – What would you do as a worker in this field?

In this field, you would express original ideas, feelings, and moods by creating paintings, drawings, statues, or other objects or designs. There are two broad types of art work: the fine arts and the commercial arts.

The fine arts, including portrait and mural paintings, sculpturing, ceramic work, and mosaic work, are produced to express the feelings of the artist rather than at the order of someone else. As a worker in the fine arts, you would be free to choose your own materials and decide how you want to use them.

Commercial arts are concerned with making designs which must meet specified requirements for use in business and industry. As a commercial designer or artist you would perform your work or create designs to meet the requirements of your employer.

WORKER REQUIREMENTS – What qualifications would you need?

To work in either commercial or fine arts, you need to recognize and appreciate beauty, as well as to have the imagination to create new designs for pieces of art. To do this, you would need to know how to combine colors and lines. It would also be important for you to be able to see slight differences in color, form, shape, and texture. Since jobs in this group require the use of brushes, pens, and hand tools, you should be able to use your arms, hands, and fingers skillfully to paint, draw, or carve.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- working with your hands to make things
- winning an award in an arts or crafts exhibit
- drawing or sketching people, cars, animals, or other things
- carving objects out of wood or stone, or molding them from clay
- performing some form of art work as an active hobby

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

A diploma from a two or three-year art theory and practice program of a vocational school, art school, or institute is usually enough preparation for beginning jobs in the commercial arts. You might find employment with printing and publishing houses, advertising agencies, commercial art studios, fashion design agencies, textile mills, jewelry companies, motion picture studios, department stores, or government agencies. With special skills in lettering, sketching, or printing layout, you would find even more opportunities for jobs in various industries. Advancement in the commercial art field would come as you further develop artistic and technical skills or take on supervisory responsibilities.

The bachelor of fine arts degree offered by art schools with a four-year program is usually considered evidence of preparation for entry into fine art work. Courses in portrait and landscape painting, sculpture, history, and English would be included in a fine arts education, but might not be included in a commercial art program. However, for the highly talented in fine art work, college is not a necessity.

Many people with talent for fine art work turn to one of the commercial arts for a living or are self-employed. Those who are self-employed sell their work either on their own or through an art dealer.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

9 Rating information by using personal judgment.
X Interpreting feelings, ideas, or facts from a personal point of view.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

6 Activities concerned with people and the communication of ideas.
8 Activities of an unusual, indefinite nature which require creative imagination.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

5 Over 6 months up to and including 1 year.
7 Over 2 years up to and including 4 years.
8 Over 4 years up to and including 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	▨
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.			▨	▨	
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.				▨	▨
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.				▨	
K – MOTOR COORDINATION: ability to coordinate the use of eyes and hands or fingers rapidly and accurately to perform a task.			▨	▨	
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.			▨	▨	
M – MANUAL DEXTERITY: ability to work easily and skillfully with the hands.			▨	▨	
C – COLOR DISCRIMINATION: ability to recognize likenesses and differences in colors and shades, to identify or match specific colors, and to select color combinations which go well together.			▨	▨	▨

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **5 4**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **S L 4 6**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.081**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

2	Decorating and Art Work
3	Photography and Motion Picture Camera Work
56	Drafting and Related Work
5	Artistic Restoration, Decoration, and Related Work
1	Instructive Work, Fine Arts, Theater, Music, and Related Fields

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **232**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

5

Data-High
People-Low
Things-High

Artistic Restoration, Decoration, and Related Work

Artistic restoration means to bring an art object, such as an old painting, back to its former or normal condition. Decoration and related work refers to creating or producing artistic effects or artistic products. Examples of workers in this group are Paintings Restorer, Decorator, Furniture Reproducer, Cake Decorator, Taxidermist, and Museum Technician.

WORK PERFORMED – What would you do as a worker in this field?

In this field your job might be to arrange, decorate, restore or make things, using different objects and materials to produce an artistic effect or product. You would probably specialize in one area of work using the skills, knowledge, and methods of that particular area. For example, you might use your knowledge of art and its skills to restore a painting, to make and/or arrange decorations for banquets or displays, to decorate cakes, or to fashion (design and make) sample pieces of jewelry. You might use a knowledge of history to arrange a museum display, a knowledge of and skills in architecture to restore a building or a room, or a knowledge of and skills in taxidermy to stuff and mount birds or animals.

WORKER REQUIREMENTS – What qualifications would you need?

To qualify for one of these jobs, you need to learn the purposes and methods of the particular job. You might also need to acquire some knowledge of such fields as art, history, architecture, or taxidermy. You should be able to imagine how different objects would look when arranged together and you must be aware of differences in shape, color, and texture. You need to be good at working with your hands as well as with your mind, as many of these jobs require accuracy in following very detailed plans.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- having hobbies requiring the use of plans, such as model airplane building
- making or refinishing furniture
- doing needlework such as quilting, needlepoint, embroidery, or crocheting.

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

You can probably get the best training for beginning jobs in this group by attending a vocational (trade) school or a high school offering courses in woodworking, carpentry, and art design or crafts. Creative or artistic hobbies such as painting, photography, or ceramics also provide a useful background. Many jobs in this group need highly specialized skills which require one to four years of on-the-job training.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

1 Performing a variety of duties which may often change.
9 Rating information by using personal judgment.
0 Rating information using standards that can be measured or checked.
Y Working within precise limits or standards of accuracy.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

9 Activities which are nonsocial and involve the use of machines, processes, or methods.
0 Activities which bring personal satisfaction from working on or producing things.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

6 Over 1 year up to and including 2 years.
7 Over 2 years up to and including 4 years.

APTITUDES — The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.			▨		
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.			▨		
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.				▨	
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.			▨	▨	
K – MOTOR COORDINATION: ability to coordinate the use of eyes and hands or fingers rapidly and accurately to perform a task.			▨	▨	
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.			▨	▨	
M – MANUAL DEXTERITY: ability to work easily and skillfully with the hands.			▨	▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) — The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 4 5

PHYSICAL DEMANDS — The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: L M 4 6

DATA-PEOPLE-THINGS (D-P-T) — The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .281 .381

RELATED GROUPS OF JOBS — Other Worker Trait Groups related to this Worker Trait Group include:

4	Art Work
2	Decorating and Art Work
37	Craftsmanship and Related Work
38	Precision Working
35	Costuming, Tailoring, and Dressmaking

ADDITIONAL INFORMATION — You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **234**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

6

Data-High
People-High
Things-Low

Administration

Administration means to manage or direct the activities of a business, organization, or branch of government. Examples of workers in this group are Fire Chief, School Principal, School Superintendent, City Manager, and Police Chief.

WORK PERFORMED – What would you do as a worker in this field?

As an administrator, you would develop and carry out rules, regulations, and methods for running an organization or establishment. You might be responsible for planning work that is to be done by others and for assigning work tasks to different individuals or groups. You would be responsible for scheduling activities and making sure tasks are completed. You would also need to coordinate (arrange) the work of all departments or sections of your organization to help make it operate successfully.

WORKER REQUIREMENTS – What qualifications would you need?

To be a good administrator, you need the knowledge and ability to develop, organize, plan, and carry out methods of action and work activities. You must be able to analyze (break down and study) problems and develop good solutions. People involved in administrative work need to understand the methods and practices used in administration and to choose the best method for handling a particular situation. It is important that they be able to adjust to new or changing conditions. As an administrator, you would need to be good with numbers because you would be responsible for preparing or reviewing different kinds of reports dealing with money, materials, or time schedules. You would also be working with people, which would require you to be able to talk and work in a way that would gain their confidence and support.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- serving as business manager of the school yearbook or as class president or treasurer
- classes in business or government administration
- experience in organizing people and activities
- success and advancement in lower level jobs in a similar or related field
- production manager of a school play

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

There is no one "best way" to get into administrative work. Most administrators are promoted into the job after many years of experience and having worked their way up through the ranks of the organization. Such promotions usually depend upon knowledge and work habits, plus the ability to make sound judgments, organize work, and get along with others.

Many organizations conduct programs to train their own administrators. College graduates, often with degrees in business administration, are hired to take part in such training programs. After completing this training, they are ready to step into beginning administrative positions.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

1 Performing a variety of duties which may often change.
4 Directing, controlling, and planning an entire activity or activities of others.
5 Dealing with people in actual job duties beyond giving and receiving instructions.
9 Rating information by using personal judgment.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

2 Activities involving business contact with people.
5 Activities which bring recognition or appreciation by others.
6 Activities concerned with people and the communication of ideas

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

8 Over 4 years up to and including 10 years.
9 Over 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	▨
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.				▨	▨
N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.			▨	▨	
Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.		▨	▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 5 6

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: S L 5

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .118 .168

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

13	Accounting, Auditing, and Related Work
8	Business Training
11	Consultative and Business Services
7	Contract Negotiating and Related Work
10	Managerial Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **237**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

7

Data-High
People-High
Things-Low

Contract Negotiating and Related Work

A contract is a legal document in which two or more people agree on such things as working conditions or the amount to be paid for doing a job. Negotiating is the process of bargaining to get the best possible contract for the people or company you represent (your clients). Examples of workers in this group are Lobbyist, Booking Agent, Literary Agent, and Business Agent.

WORK PERFORMED – What would you do as a worker in this field?

As a contract negotiator, you would serve as a representative or go-between for a person, group, or organization wishing to draw up a contract with another person, group, or organization. Your job would be to present your client's point of view and get him the best agreement possible when drawing up a contract for products, property, or services. For example, you might represent a writer who wants to sell his writings to a publishing company. Other jobs in this group might require you to "lobby," which is the act of persuading law makers to vote for laws which will help your client, and to vote against laws which he opposes.

WORKER REQUIREMENTS – What qualifications would you need?

In jobs of this kind, you must like working with people. You must know how to talk and argue in a way that convinces people; to do this, you need to be able to judge how others feel, what they think, and how they might react to what you say and do. In order to work with legal documents you must understand contract and property laws, as well as legal and insurance language.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- speaking before groups
- being on a debate team in school
- serving as class, club, or group officer

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

You would not usually go into this field right after finishing your education. Most people enter it only after they have had considerable experience in a field of work such as law, business, sales, or manufacturing. Employers usually prefer a degree in law, but sometimes a degree in business or liberal arts is accepted. Successful personal contacts with people in your special field and a detailed knowledge of the work you represent are important keys to your success in this type of work. Only after you have had considerable experience in this work would you be expected to work completely on your own.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

1 Performing a variety of duties which may often change.
4 Directing, controlling, and planning an entire activity or activities of others.
5 Dealing with people in actual job duties beyond giving and receiving instructions.
7 Influencing people's opinions, attitudes, or judgments about ideas or things.
9 Rating information by using personal judgment.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

2 Activities involving business contact with people.
5 Activities which bring recognition or appreciation by others.
6 Activities concerned with people and the communication of ideas.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

6 Over 1 year up to and including 2 years.
7 Over 2 years up to and including 4 years.
8 Over 4 years up to and including 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.				▨	
Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.		▨	▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 4 5

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: S 1 4 5 6

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C

D-P-T Code(s): .118 .168

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include :

6	Administration
11	Consultative and Business Services
94	Promotion and Publicity
95	Purchase and Sales Work
14	Title and Contract Search and Analysis and Related Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **239**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

8

Data-High
People-High
Things-Low

Business Training

Business training means to introduce new employees to the functions, purposes, and goals of the employing business or company. This introduction helps new employees to become better qualified to work for their company. Examples of workers in this group are Chief Airline Stewardess and Telephone Contract Clerk Training Supervisor.

WORK PERFORMED – What would you do as a worker in this field?

In this field you would train and instruct new employees of a company or business. You would explain to them how the company is organized, how it operates, and what policies and regulations they are expected to follow. You would explain any special terms or words that are used in the business or company and you might also give instructions on dealing effectively with customers.

WORKER REQUIREMENTS – What qualifications would you need?

To work in this field you should have an interest in working with people as well as with ideas and information. Since the communication of ideas would be your main task as a business training worker, you should be able to express yourself well in speaking and writing. After you have obtained the background knowledge for instructing new employees, it would be necessary to organize what you know in order to plan training sessions and to answer questions.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- speaking before groups
- being around people and working with them
- instructing your friends on the rules of new games

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

To get a business training job, you must be familiar with the management rules and operating methods of a company. Knowledge of this kind is usually gained through related work experience with the company, particularly by working in a department responsible for dealing with employees. A good basic background for jobs in this field includes college-level business courses, especially those dealing with employee relations, and classes in modern teaching methods, including practice teaching.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

1 Performing a variety of duties which may often change.
4 Directing, controlling, and planning an entire activity or activities of others.
5 Dealing with people in actual job duties beyond giving and receiving instructions.
9 Rating information by using personal judgment.
0 Rating information using standards that can be measured or checked.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

2 Activities involving business contact with people.
5 Activities which bring recognition or appreciation by others.
6 Activities concerned with people and the communication of ideas.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

6 Over 1 year up to and including 2 years.
7 Over 2 years up to and including 4 years.
8 Over 4 years up to and including 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.			▨	▨	
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.			▨	▨	
N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.			▨	▨	
Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.		▨	▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following number indicates the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 3 4 5

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: S L M 2 4 5 6

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .228

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

41 Industrial Training
48 Training Services

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **241**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

9

Data-High
People-High
Things-Low

Supervisory Work

Clerical, Sales, and Related Activities

Supervising means to be in charge and to direct the work of others. Examples of workers in this group are Head Teller (in a bank), Chief Payroll Clerk, Typing Section Chief, Stock Supervisor, and Receiving and Shipping Foreman.

WORK PERFORMED – What would you do as a worker in this field?

Your responsibilities as a worker in this field would include planning and directing the activities of persons involved in clerical, sales, or similar work. This would involve scheduling workers' time, assigning their duties, overseeing work performed, and recommending changes in work methods. You might approve personal checks for purchases by customers; make decisions concerning hiring, promoting, or firing workers; or be responsible for accepting new merchandise. You might also keep records of such things as safety deposit box rentals, items in stock, charges for personal telephone calls, worker attendance, or worker assignments. Some jobs might involve writing reports related to the work being supervised.

WORKER REQUIREMENTS – What qualifications would you need?

To direct and supervise the work of others, you would need: (1) knowledge of the tasks performed by the people you supervise and the ability to do them yourself; (2) ability to plan and make assignments and to see that each task is completed correctly and on time; (3) skill in writing and speaking so that people you work with understand your directions; (4) ability to recognize mistakes in written material, tables of figures, price lists, inventories (records of goods on hand), and timetables; (5) talent for getting people to work well, both by themselves and with others, even when they have to do the same things over and over; and (6) ability to train new employees.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- serving as class, club, or group officer, or chairman of a committee
- talking before groups of people
- directing the activities of others

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Often, workers in supervisory positions start as clerks or salespersons and are promoted when they develop the necessary work experience and supervisory skills. Some organizations require special training in supervison and some give special consideration to employees who complete courses such as salesmanship or business management.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

4 Directing, controlling, and planning an entire activity or activities of others.

5 Dealing with people in actual job duties beyond giving and receiving instructions.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

2 Activities involving business contact with people.

5 Activities which bring recognition or appreciation by others.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

6 Over 1 year up to and including 2 years.
7 Over 2 years up to and including 4 years.
8 Over 4 years up to and including 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.			▨	▨	
Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.		▨	▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **4 5**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **S L 5**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.138**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

10 Managerial Work
95 Purchase and Sales Work
97 Demonstration and Sales Work
24 Classifying, Filing, and Related Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **243**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

10

Data-High
People-Average
Things-Low

Managerial Work

Managerial work means to direct or conduct the work activities of a group of persons such as those in a particular department of a business, company, or other organization. Examples of workers in this group are Dietitian, Librarian, Motion Picture Director, Advertising Manager, Funeral Director, Revenue Agent, Postmaster, and Farm Manager.

WORK PERFORMED – What would you do as a worker in this field?

Being in charge of a section or department of an organization would be your main task as a managerial worker. You would be required to plan and organize activities of your department to make sure that work is done properly. In some jobs, you would be in charge of an entire organization that might be part of a larger organization, such as a branch of a chain store. Other jobs in this group require planning and operating a specific program or project.

WORKER REQUIREMENTS – What qualifications would you need?

Workers with managerial responsibilities need the skills to plan, start, and carry out schedules of work. This involves understanding and knowing how to apply guidelines for getting work done quickly and effectively. In these jobs, you would need to be able to work with numbers because you would analyze (study) statistics (facts about people or things which are shown by numbers). You might also keep records of the things that have been produced by your department, or keep inventories (lists) of the items that are in stock or on the shelves at a particular time.

In directing the work of others, you need to express your ideas clearly and understandably, and get along well with people. It is also important for you to have leadership qualities so that other workers trust and respect your judgment and follow your directions.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- being in charge of a committee or group in a team effort
- planning and organizing your work, hobbies, and spare time
- making decisions based on your own judgment
- being president or treasurer of a club or group

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

The most common way to get a managerial position is to be promoted through the ranks of the organization where you work. Sometimes, however, an organization looking for new ideas, techniques (methods), or procedures might hire someone not already employed by them.

For positions with most large employers you would need a college education, including courses on how to deal with people, how to run a business, how to buy and sell for a profit, and how a particular job is done in special fields such as farm management or advertising. As a new employee you might take part in a management-trainee program which combines special management classes with actual work experience.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

1 Performing a variety of duties which may often change.
4 Directing, controlling, and planning an entire activity or activities of others.
5 Dealing with people in actual job duties beyond giving and receiving instructions.
9 Rating information by using personal judgment.
0 Rating information using standards that can be measured or checked.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

2 Activities involving business contact with people.
5 Activities which bring recognition or appreciation by others.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

6 Over 1 year up to and including 2 years.
7 Over 2 years up to and including 4 years.
8 Over 4 years up to and including 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

	ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY				
	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	▨
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.				▨	▨
N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.			▨	▨	
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.		▨			
Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.			▨	▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **4 5**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **S L**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.168**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

6	Administration
11	Consultative and Business Services
9	Supervisory Work (Clerical, Sales and Related Activities)
55	Engineering, Scientific, and Technical Coordination

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **245**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

11

Data-High
People-Average
Things-Low

Consultative and Business Services

Consultative work involves studying methods and procedures used and then developing and recommending ways to improve a business or organization or particular program. Examples of workers in this group are Budget Consultant, Loan Counselor, Technical Service Manager, Clerical Technician, and Organization and Methods Examiner.

WORK PERFORMED – What would you do as a worker in this field?

As a worker in this group, your services would most likely be used by a business, company, or other organization as a part of its regular management program. However, your services might be needed when a business is planning a change in its operation or has problems concerning clerical, bookkeeping, or money management methods which it cannot solve without outside help. When doing either of these tasks, you would first study the company and its organization carefully to determine existing problems and conditions. In examining the business, you might study how it is organized, how it spends its money, how it keeps its records, or how it uses information, and then compare your findings with proven, successful programs of management. You would make suggestions on ways to improve conditions or solve existing problems. You might also help make the recommended changes.

WORKER REQUIREMENTS – What qualifications would you need?

To be a good consultant, you need a thorough knowledge of business organization and management. You must get along well with people because you will need information from them, and you will need to be able to persuade them to follow your suggestions. Since businesses depend upon records and bookkeeping accounts, you must be skilled in working with numbers. In examining records and accounts you must be alert to any mistakes in the use of words or numbers, for even the smallest error can upset your findings and recommendations. You must also keep in mind that each business, company, and organization is different and requires individual attention and recommendations.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- finding the best way to get a job done
- liking to work with numbers
- doing well in math or bookkeeping courses
- organizing activities of others

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

A college degree in business administration is practically a necessity if you want to be employed in this field. Special skills in math, such as accounting, will help you to gain employment since consultant firms generally prefer to hire workers who have had a great deal of successful experience in a specific area such as accounting. Some firms hire promising college graduates and train them for this special type of work.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

1 Performing a variety of duties which may often change.
4 Directing, controlling, and planning an entire activity or activities of others.
5 Dealing with people in actual job duties beyond giving and receiving instructions.
0 Rating information using standards that can be measured or checked.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

2 Activities involving business contact with people.
9 Activities which are nonsocial and involve the use of machines, processes, or methods.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

5 Over 6 months up to and including 1 year.
7 Over 2 years up to and including 4 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.				▨	
N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.				▨	▨
Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.				▨	▨

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 5

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: S L 4 5 6

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .168 .268

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

13 Accounting, Auditing, and Related Work
7 Contract Negotiating and Related Work
6 Administration
9 Supervisory Work (Clerical, Sales, and Related Activities)
8 Business Training
14 Title and Contract Search and Analysis and Related Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **248**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

Interviewing, Information-Giving, and Related Work Vocational, Educational, and Related Activities

12

Data-High
People-Average
Things-Low

Interviewing means to talk with people in order to collect certain facts, while information giving means to give people facts concerning specific matters. Examples of workers in this group are Movie Casting Director, Personnel Recruiter, Survey Worker, Placement Officer, and Hospital-Insurance Representative.

WORK PERFORMED – What would you do as a worker in this field?

As a worker in this field, you would interview people to collect information about them or opinions they might have. You then might make decisions based on your findings and/or on other information you might have. Some jobs in this field would require you to provide information to help others understand certain rules and regulations, such as those concerning insurance, education, or housing.

WORKER REQUIREMENTS – What qualifications would you need?

In this field you need to work and talk with all kinds of people and be understood by them. You need to be able to put them at ease and gain their confidence and trust. Your work would also deal with handling facts. You should be able to pick out errors in numbers or facts and to organize information as questions are asked and answered during an interview. Before making decisions you would need to think things through carefully to weigh the importance of the information being considered. A combination of several of these skills would help you to be a good worker in this field.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- working with people on a committee or in part-time employment
- organizing facts for an oral report
- liking activities that require working with others
- having a neat appearance, poise, and a pleasant personality

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Many companies fill their interviewing and information-giving jobs with people who already work for them. On-the-job training programs given by the employer add to the knowledge and skills of the worker who is being promoted. However, a college education is becoming more and more important for some jobs in this field. A helpful background for this work would be provided by courses in employee management, business administration, applied psychology, and sociology.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

5 Dealing with people in actual job duties beyond giving and receiving instructions.

9 Rating information by using personal judgment.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

2 Activities involving business contact with people.

6 Activities concerned with people and the communication of ideas.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

5 Over 6 months up to and including 1 year.

7 Over 2 years up to and including 4 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.				▨	▨
N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.			▨	▨	
Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.		▨	▨	▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **5 4**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **S**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.168 .268**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

102 Customer Service Work, n.e.c.
16 Information Gathering, Dispensing, Verifying, and Related Work
11 Consultative and Business Services

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **250**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

13

Data-High
People-Low
Things-Low

Accounting, Auditing, and Related Work

Accounting is the process of maintaining accurate business accounts and records by gathering, recording, analyzing (studying) and interpreting (explaining) numerical and financial facts and figures. Auditing is the process of examining and checking business accounts to determine their accuracy. Examples of workers in this group are Accountant, Auditor, Bank Loan Officer, Assessor, and Appraiser.

WORK PERFORMED – What would you do as a worker in this field?

As a worker in this field, you would apply the rules and methods of accounting, cost analysis (study of cost figures), and statistical analysis (study of production or financial information) to such problems as money management and auditing. Depending upon your particular job, you might set up a special system of accounting, or estimate the cash value of your employer's factory, machinery, stock, or property. (This is called appraising the assets.) You might examine and give your professional opinion about how to determine cost of a product (costing methods), about plans for the investment of money, about rates charged for lending or borrowing money, or about the risks involved in exchanging money. You would prepare charts, tables, graphs, reports, and schedules explaining the financial standing of a company or organization, to be used by those who manage it.

WORKER REQUIREMENTS – What qualifications would you need?

To be successful in this field, you have to (1) be able to pay close attention to detailed work for long periods; (2) speak and write clearly and accurately using a good vocabulary; (3) be able to plan and organize your work so you do it well and on time; (4) solve mathematical problems quickly and accurately; (5) remember details; and (6) be able to understand and apply the basic rules of accounting, money management, and statistics.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- good grades in math and English courses
- enjoyment in working with numbers
- success in keeping an accurate account of your own money
- keeping records successfully (as a treasurer or secretary) for a club or other social group or school class

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

For work in this field, you would probably need a college degree in accounting or business administration (management). With a bachelor's (four-year) degree, you may get a beginning job in cost accounting, budgeting, or sales work with the government or in private industry. College courses should include accounting and statistics, industrial and personnel management, marketing (sales) methods, money and banking, investments, and insurance.

Jobs which demand greater accuracy and responsibility generally require more education and experience. To qualify for these jobs, you usually have to earn a CPA (Certified Public Accountant) certificate by passing special tests required by the state in which you work. Most states require a college degree and two years of experience before you can take the test; however, each state has different specific requirements.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

4 Directing, controlling, and planning an entire activity or activities of others.
9 Rating information by using personal judgment.
0 Rating information using standards that can be measured or checked.
Y Working within precise limits or standards of accuracy.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

1 Activities dealing with things and objects.
7 Activities of a scientific and technical nature.
9 Activities which are nonsocial and involve the use of machines, processes, or methods.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

7 Over 2 years up to and including 4 years.
8 Over 4 years up to and including 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – **INTELLIGENCE**: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	▨
V – **VERBAL**: ability to understand meanings of words and ideas, and to present information effectively.				▨	▨
N – **NUMERICAL**: ability to perform arithmetical operations quickly and accurately.				▨	▨
Q – **CLERICAL PERCEPTION**: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.				▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 5

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: S 4 6

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .188 .288

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

6	Administration
26	Computing and Related Recording
11	Consultative and Business Services

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **252**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

14

Data-High
People-Low
Things-Low

Title and Contract Search and Analysis and Related Work

Title and contract search and analysis means to study and examine legal and business documents in order to determine if they are complete and accurate. Examples of workers in this group are Contract Clerk, Acquisitions Librarian, Law Clerk, Title Examiner, Insurance Claim Examiner, and Patent Examiner.

WORK PERFORMED – What would you do as a worker in this field?

In this field most of your time would be spent examining and preparing legal and business documents such as titles (proof of ownership of land or personal property), mortgages (loans on real estate), liens (claims on property for payment of a debt), and contracts. Your primary responsibility would be to determine if the legal papers you are examining are genuine and correct. You might also be required to prepare such technical papers or documents.

WORKER REQUIREMENTS – What qualifications would you need?

To be successful, you need to know and understand legal and business terms as well as rules that must be followed in approving or in writing documents.

You must be able to read rapidly and understand what you read. A major part of your work would involve scanning documents to obtain specific information and making a summary of your findings. This requires the ability to analyze (break down and study) what you read and pick out the details that you need.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- getting good grades in subjects that require reading and reasoning
- being able to express your ideas clearly and understandably
- enjoying work that requires reading and putting facts together in writing
- doing library research or making reports that require you to find out what others have written or done about the same problem

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

To get a job in this field you need a thorough knowledge of terminology (legal and business terms) and official regulations related to your field of specialization. This is gained through courses in law or business. A college degree or a number of college or night school courses in business or law should give you a background for entry level jobs.

Some employers might hire or promote you if you are successful in doing less complicated work of a similar nature. In this case, much would depend on your knowledge of the language used in documents and the rules concerning document preparation.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

9 Rating information by using personal judgment.
0 Rating information using standards that can be measured or checked.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

6 Activities concerned with people and the communication of ideas.
2 Activities involving business contact with people.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

6 Over 1 year up to and including 2 years.
7 Over 2 years up to and including 4 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	▨
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.				▨	▨
Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.			▨	▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **5**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **5 6**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.288**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

78	Legal and Related Work
74	Investigating, Protecting, and Related Work
61	Technical Writing and Related Work
114	Translating, Editing, and Related Work
24	Classifying, Filing, and Related Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **254**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

15

Data-High
People-Low
Things-Low

Corresponding and Related Work

Corresponding means to prepare letters, reports, forms, or documents which contain a message to be passed on to the reader. Examples of workers in this group are Correspondence Clerk, Sales Correspondent, Collection Clerk, and Town Clerk.

WORK PERFORMED – What would you do as a worker in this field?

As a worker in this field, your main duties would be to prepare and write correspondence (letters), reports, messages, and other documents. Part of this work would be to take down (record), study, and edit (improve) what has been said or written. Jobs in this group have specific duties which set them apart from each other. **Correspondence clerks** reply to letters received from customers about merchandise orders, damage claims, credit policies, overdue accounts, incorrect billing, unsatisfactory services, or to request information. **Sales correspondents** gather information and answer customers' letters requesting special services or products. **Collection clerks** handle overdue customer accounts by preparing statements which show how much a customer owes and sending form letters asking for payment. **Town clerks** perform clerical and administrative duties for the town council, including recording the minutes of council meetings, answering official correspondence, keeping financial records, and preparing reports.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this group require you to (1) have a good vocabulary and be able to use language easily; (2) pay close attention to details; (3) use proper grammar, word-choice, spelling, and punctuation; and (4) be able to organize facts when preparing letters or reports.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- enjoyment in writing letters
- receiving good grades in business and English courses
- taking good notes in class
- being secretary for a club or other social group

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Entry into this kind of work usually requires graduation from high school plus the completion of several college courses with an emphasis on English grammar and composition (writing). It would be possible for you to start out in a clerical position and advance to a correspondence position after you have become familiar with your employer's policies and methods.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

9 Rating information by using personal judgment.

Y Working within precise limits or standards of accuracy.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

2 Activities involving business contact with people.

6 Activities concerned with people and the communication of ideas.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

6 Over 1 year up to and including 2 years.
7 Over 2 years up to and including 4 years.
8 Over 4 years up to and including 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.				▨	▨

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 5 4

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands. 5 6 5

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .288 .388

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

111	Journalism and Editorial Work
112	Creative Writing
24	Classifying, Filing, and Related Work
16	Information Gathering, Dispensing, Verifying, and Related Work
114	Translating, Editing, and Related Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page 256. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

16

Data-Average
People-Average
Things-Low

Information Gathering, Dispensing, Verifying, and Related Work

Information gathering, dispensing, and verifying means to collect and give out facts as well as to check them to make sure they are correct. Examples of workers in this group are Receptionist, Court Clerk, Credit Clerk, Fingerprint Clerk, Library Assistant, and Guide.

WORK PERFORMED – What would you do as a worker in this field?

As a worker in this job group, you would collect facts and check to see that they are correct. Such information would usually be collected and checked by talking with people, either in person or by telephone. Information might also be gathered by observation or by looking things up in files or books. You would use this information to answer questions, to keep people informed, or to take some type of previously determined action as a result of the collected information. Most of these jobs involve some type of clerical work, such as record-keeping.

WORKER REQUIREMENTS – What qualifications would you need?

In this type of work you should like to work with people and be able to talk with them easily. This means you should be good with words so that you can get needed information from people and make a good impression on others when answering questions.

You need to be very careful in reviewing records and avoiding mistakes. Some jobs involve the skills necessary to work with numbers, requiring you to understand and interpret or keep numerical records and accounts.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- collecting information or giving it out to people
- speaking before people
- writing articles or themes
- acting as guide for school visitors

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

A high school education, including commercial and business courses, is usually enough background for getting a job in this field. However, some employers prefer workers who have had some college or night school courses. Another way to get a job in this field is by advancing from a clerical job with the same employer. Usually, you would be given on-the-job training under the direction of an experienced worker.

Besides education and work experience, personal qualities are considered by employers and influence your chances of being hired or promoted (advanced). Important personal qualities are appearance, speaking ability, and ability to get along well with others.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

5 Dealing with people in actual job duties beyond giving and receiving instructions.
9 Rating information by using personal judgment.
0 Rating information using standards that can be measured or checked.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

6 Activities concerned with people and the communication of ideas.
2 Activities involving business contact with people.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

3 Over 30 days up to and including 3 months.
4 Over 3 months up to and including 6 months.
5 Over 6 months up to and including 1 year.
6 Over 1 year up to and including 2 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.			▨		
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.			▨	▨	
N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.		▨	▨		
Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.			▨	▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): L 4 5

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: 3 4

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .368

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

12	Interviewing, Information-Giving, and Related Work (Vocational, Educational, and Related Activities)
11	Consultative and Business Services
19	Facilities, Services, and Movement Allocating and Expediting Work
24	Classifying, Filing, and Related Work
26	Computing and Related Recording

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **258**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

Scheduling, Dispatching, Expediting, and Related Work

17

Data-High
People-Average
Things-Low

Scheduling means to make a detailed plan of action with a definite completion date or specific time in mind. Dispatching means to arrange the sending off of something to a specific destination. Expediting means to make certain that a desired activity is completed with speed and efficiency so as to keep on schedule or meet deadlines.

Examples of workers in this group are Train Dispatcher, Yardmaster, Air-Traffic Coordinator, Travel Guide, Airplane Dispatcher, and Material Coordinator.

WORK PERFORMED – What would you do as a worker in this field?

As a worker in this field, you might be involved in one of many areas of work ranging from transportation and communication to production or recreation. Your work might involve planning, arranging, and expediting (1) the movement of people or objects as in transportation, (2) the activities of workers as in a product assembly line, (3) the operations of a system such as in airline traffic routes, or (4) the procedures used to control a system as in radio and television broadcasting. You would usually make up work schedules or routes of travel and see to it that they are followed.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this field require you to be able to (1) understand procedures and rules and use them to arrange specific activities, (2) explain difficult or complicated information and prepare written reports, (3) examine possible ways of doing a task and choose the best, (4) judge the size and best use of space, (5) plan and direct various activities, (6) take responsibility for directing several different activities that are going on at the same time, and (7) keep accurate records by finding and correcting errors.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- success in schoolwork requiring careful reasoning and planning
- arranging details for family or class trips
- being manager of a school athletic team, responsible for equipment and supplies
- planning meeting schedules and programs for a club or group

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Instead of starting directly into a job in this field, you would more likely be promoted (advanced) or transferred from another job with the same employer. Learning the problems, methods, and rules that affect the job usually takes up to four years of work experience. Some correspondence schools and night school or adult education programs offer a limited amount of training in dispatching and production scheduling.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

4 Directing, controlling, and planning an entire activity or activities of others.
5 Dealing with people in actual job duties beyond giving and receiving instructions.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

2 Activities involving business contact with people.
9 Activities which are nonsocial and involve the use of machines, processes, or methods.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

6 Over 1 year up to and including 2 years.
7 Over 2 years up to and including 4 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

	ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY				
	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.			▨	▨	
N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.			▨	▨	
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.		▨			
Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.			▨	▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 4

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: S 5 4

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .168

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

110	Transportation Service Work
29	Routine Checking and Recording
19	Facilities, Services, and Movement Allocating and Expediting Work
10	Managerial Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **261**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

18

Data-High
People-Average
Things-Low

Secretarial and Related Work

Secretarial work includes taking shorthand and transcribing it, typing, preparing letters, and keeping records. In addition, many employers depend on their secretaries to answer correspondence, assist office visitors, or perform other duties which require personal judgment and decision-making. Examples of workers in this group are Legal Secretary, Medical Secretary, Public Relations Secretary, and Movie Script Clerk.

WORK PERFORMED – What would you do as a worker in this field?

If you should choose a career in this field you would be concerned mainly with two types of activities: clerical tasks and minor management or executive duties. Clerical tasks include taking dictation and transcribing it. Dictation means to write down, or record, what a person is saying. This is usually done by either writing or using a machine to record shorthand marks or symbols which can be transcribed into words. Transcribing the dictation means to change the symbols back into words by using a typewriter. Sometimes you might use a transcribing machine which plays back a recording that has been dictated for you to type as you listen.

Minor management or executive duties might include making appointments for your bosses and reminding them of these appointments, talking with office visitors to determine what they want and whom they want to see, answering and making telephone calls, and reading and writing letters that are of a general nature. By doing these tasks, you would relieve your bosses of routine responsibilities and allow them more time for important management and executive work.

WORKER REQUIREMENTS – What qualifications would you need?

To be a good secretary, you should be able to do detailed work without mistakes. This requires the ability to see slight differences in shorthand symbols and to control hand and finger movements to write shorthand and use office machines effectively.

Since you would be meeting different types of people in many different situations, you must be able to adjust to new situations quickly and deal with people skillfully. Skill in using words easily is important when dealing with people.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- doing office work such as writing letters, filing, etc.
- being well-groomed
- serving as secretary to a club or group
- having a pleasant personality and voice
- having a good high school record in typing, shorthand, and other business courses

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

As training for a secretarial job, you should have a broad educational background, including the successful completion of a business course in high school and/or in a business college. You should be able to demonstrate that you have the clerical skills and meet the personal requirements necessary for the job. Employers want secretarial workers who are careful in their work, can use their own judgment, and can work well with others. Many secretarial positions require additional education which can be gained in night school or college classes. Some employers require that you be familiar with the terms used in a particular field, such as law, medicine, or engineering.

You would probably start in this field as a typist or stenographer, and advance to a secretarial job as you gain the necessary skills and knowledge. Some schools conduct cooperative work-study programs which let students work part-time to gain job experience while they are still in school.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

1 Performing a variety of duties which may often change.

5 Dealing with people in actual job duties beyond giving and receiving instructions.

9 Rating information by using personal judgment.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

2 Activities involving business contact with people.

6 Activities concerned with people and the communication of ideas.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

6 Over 1 year up to and including 2 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.				▨	
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.				▨	
Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.				▨	
K – MOTOR COORDINATION: ability to coordinate the use of eyes and hands or fingers rapidly and accurately to perform a task.				▨	
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.			▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 4

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: S 4 5 6

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .268 .368

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

25	Stenographic and Related Work
28	Typing and Related Recording
15	Corresponding and Related Work
16	Information Gathering, Dispensing, Verifying, and Related Work
12	Interviewing, Information-Giving, and Related Work (Vocational, Educational, and Related Activities)

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page 263. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

19

Data-Average/
People-Average
Things-Low

Facilities, Services, and Movement

Allocating and Expediting Work

Allocating means assigning something for a particular use or to a particular person or place. Expediting means to make certain that a desired activity is completed with speed and efficiency so as to keep on a schedule and meet deadlines. Examples of workers in this group are Expediter, Hotel Clerk, Service Clerk, Reservation Clerk, Radio Dispatcher, and Ticket Agent.

WORK PERFORMED – What would you do as a worker in this field?

This work involves giving assignments to personnel (workers) and making sure of the proper use of equipment, supplies, services, and facilities. (A facility is something built, installed, or established to serve a particular purpose, such as a hotel, stadium, or hospital.) In this work, you would follow previously determined schedules and procedures. You might be in charge of recording the names of guests at a hotel and giving them rooms, or selling transportation tickets and checking to make sure that space is available on the vehicle. You might give job assignments to other workers as calls are received asking for such things as police assistance or service on equipment or utilities. You would be responsible for making sure that the work is done in a speedy, efficient manner.

WORKER REQUIREMENTS – What qualifications would you need?

Work in this field requires that you (1) become thoroughly familiar with the established rules and guidelines which apply to your particular job, (2) be able to communicate instructions and information clearly and accurately, (3) see well enough to avoid errors in reading columns of figures and to keep accurate records, (4) be able to adjust to changing situations, and (5) be dependable.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- liking for some types of desk-type office job
- ability to follow instructions and directions
- being manager of an athletic team, responsible for equipment and supplies

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Employers commonly fill positions in this field by advancing employees already working for the organization. It usually takes from three months to a year to learn the specific methods and procedures required by a particular company. You might be able to enter this field as a trainee (person in training) if you have had some general clerical training or experience.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

1 Performing a variety of duties which may often change.

5 Dealing with people in actual job duties beyond giving and receiving instructions.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

2 Activities involving business contact with people.

3 Activities of a routine, definite, organized nature.

9 Activities which are nonsocial and involve the use of machines, processes, or methods.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

3 Over 30 days up to and including 3 months.
4 Over 3 months up to and including 6 months.
5 Over 6 months up to and including 1 year.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.			▨		
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.			▨		
Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.			▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 3 4

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: S L 4 5

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .368

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

17 Scheduling, Dispatching, Expediting, and Related Work
24 Classifying, Filing, and Related Work
29 Routine Checking and Recording

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **265**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

20

Data-Average
People-Average
Things-Low

Paying and Receiving

Banks and Other Establishments

Paying and receiving means accepting and recording payments and deposits made to banks, loan companies, credit unions, or some other money-handling organization. Examples of workers in this group are Bank Teller and Post-Office Clerk.

WORK PERFORMED – What would you do as a worker in this field?

Receiving money from people while working in a bank, credit union, loan agency, or other money-handling organization is the main task in this field. Money received would probably be for payment of a loan or bill, for deposit in a personal account, or for the purchase of postage. It might also be for the purchase of savings bonds, travelers checks, postal insurance, or money orders. You would be required to keep records showing the amount of money received and the reason for which it was received. Cashing checks or making change could be involved, and these money exchanges would also be recorded.

Other work performed in this field includes computing (figuring) such things as cash totals, service charges, or mailing costs, and operating machines that calculate (work math problems), write checks, or cancel mail.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this field require that you (1) learn and use bookkeeping methods; (2) handle and record money exchanges quickly and accurately; (3) have skill in operating calculating machines; (4) be able to remember details; and (5) be honest, neat, friendly, and thoughtful of others.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- good grades in bookkeeping or other business courses
- selling tickets to school activities
- serving as treasurer of school class or a club or church group
- having a part-time job, such as paper boy, which involves the handling of money

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

A high school education is often enough to get you into this field, but your chances for entry and advancement will be better if you take courses in bookkeeping and other business subjects, especially those which teach the use of various business machines. In many cases, new workers receive on-the-job training by working with an experienced worker.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

5 Dealing with people in actual job duties beyond giving and receiving instructions.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

2 Activities involving business contact with people.

3 Activities of a routine, definite, organized nature.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

5 Over 6 months up to and including 1 year.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

APTITUDES	ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY				
	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.			▨	▨	
N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.				▨	
Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.			▨	▨	
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.			▨	▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.
GED Level(s): 4

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.
Physical Demands: S L

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.
D-P-T Code(s): .368

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

13 Accounting, Auditing and Related Work
26 Computing and Related Recording
21 Cashiering (Drug Stores, Theaters, Restaurants, and Related Establishments)
102 Customer Service Work, N.E.C.
29 Routine Checking and Recording

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **267** Volume I of the DOT lists these jobs in alphabetical order and gives further information.

21

Data-Average
People-Average
Things-Low

Cashiering Drug Stores, Theaters, Restaurants, and Related Establishments

Cashiering means to handle money as it is paid into and out of a store or other establishment. Examples of workers in this group are Toll Collector, Ticket Seller, Cashier, Checker, and Drugstore Cashier.

WORK PERFORMED – What would you do as a worker in this field?

A cashier receives and pays out money, while keeping accurate records of these transactions. As a worker behind a cash register in a business such as a drugstore, theater, or restaurant, you would collect money, make change, cash checks, and keep records. You would also check the accuracy of these records daily to make sure you have not made any errors. At times you might give information to customers.

WORKER REQUIREMENTS – What qualifications would you need?

No matter how simple the work of a cashier may seem, it demands a number of important personal qualities. You must know how to work with figures and how to do simple bookkeeping. Usually you have to learn to operate a cash register or adding machine, which means you must be quick and accurate with your hands and fingers. You also need speed and accuracy in adding and subtracting numbers. Finally, you should be neat, pleasant, and thoughtful of others.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- good grades in math and business courses
- experience as delivery boy or newspaper carrier or in other jobs requiring the handling of money
- handling and changing money for club bake sales
- working with people in any business situation

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

In most cases, you need a high school education which should include courses in business arithmetic, bookkeeping, and public speaking. Some companies and schools have special training programs for cashiers. Other firms offer on-the-job training which allows new employees to earn as they learn.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

2 Repeating activities or tasks of short duration according to a required routine procedure or sequence.
5 Dealing with people in actual job duties beyond giving and receiving instructions.
Y Working within precise limits or standards of accuracy.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

2 Activities involving business contact with people.
3 Activities of a routine, definite, organized nature.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

2 Anything beyond short demonstration up to and including 30 days
3 Over 30 days up to and including 3 months.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability including being able to follow instructions, to reason and make judgments, and to do well in school.			▨	▨	
N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.			▨	▨	
Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.			▨	▨	
K – MOTOR COORDINATION: ability to coordinate the use of eyes and hands or fingers rapidly and accurately to perform a task.		▨	▨		
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.		▨	▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **3**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **S L 4 5**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.468**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

26	Computing and Related Recording
20	Paying and Receiving (Banks and Other Establishments)
102	Customer Service Work, n.e.c.

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **269**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

22

Data-Average
People-Low
Things-Average

Inspecting and Stock Checking

Inspecting means to examine materials and products to determine whether they meet set requirements. Stock checking means to determine what materials and products are on hand within your organization and to keep an inventory (list) of these. Examples of workers in this group are Shipping and Receiving Clerk, Stock Clerk, Tire Adjuster, and Paper Products Inspector.

WORK PERFORMED – What would you do as a worker in this field?

The most important responsibilities you would have in this field of work would be (1) checking materials and supplies that are in stock (on hand) and keeping an inventory of them, (2) inspecting products to see if they are made of the right material and are put together the right way, and (3) testing products to see if they work correctly. To inspect and test products, you would probably use complicated and exact measuring and testing equipment. However, if you were not given blueprints (plans) or specifications (exact measurements) or an operating manual (instruction book), you would have to decide on your own if the product meets the set requirements.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this field require that you (1) understand and use numbers well enough to prepare inventories, inspection reports, and records; (2) judge differences in shapes, sizes, and colors; (3) use your hands and fingers skillfully; (4) coordinate the movement of your eyes and hands (make them work together) the way your job requires; (5) be careful and accurate when working with small details; and (6) read and understand technical instructions or diagrams or blueprints. You also need a knowledge of the production standards which are being checked.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- hobbies that involve planning and building things, using written instructions
- success in mechanical drawing, shop, math, and/or bookkeeping classes
- being a proofreader for the school paper

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

The most common way to become an inspector or checker is to gain work experience with a company or organization through less complicated jobs. You would have to learn about the materials used, the finished products, and the standards which must be met. In addition to learning, on the job, you might need training in mechanical drawing, blueprint reading, and shop mathematics. These are usually taught in high schools and vocational (trade) schools.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

9 Rating information by using personal judgment.
0 Rating information using standards that can be measured or checked.
Y Working within precise limits or standards of accuracy.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

1 Activities dealing with things and objects.
3 Activities of a routine, definite, organized nature.
9 Activities which are nonsocial and involve the use of machines, processes, or methods.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

3 Over 30 days up to and including 3 months.
4 Over 3 months up to and including 6 months.
5 Over 6 months up to and including 1 year.
6 Over 1 year up to and including 2 years.
7 Over 2 years up to and including 4 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

	ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY				
	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.			▨		
N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.		▨	▨		
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.			▨		
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.			▨	▨	
Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.		▨	▨		
K – MOTOR COORDINATION: ability to coordinate the use of eyes and hands or fingers rapidly and accurately to perform a task.		▨	▨		
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.		▨	▨		
M – MANUAL DEXTERITY: ability to work easily and skillfully with the hands.		▨	▨		
C – COLOR DISCRIMINATION: ability to recognize likenesses and differences in colors and shades, to identify or match specific colors, and to select color combinations which go well together.		▨	▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **3 4**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **S L M 4 5 6**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.382 .384 .387 .484 .487**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

76	Appraising and Investigating Work
24	Classifying, Filing, and Related Work
27	Sorting, Inspecting, Measuring, and Related Work
29	Routine Checking and Recording
56	Drafting and Related Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **271**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

23

Data-Average
People-Low
Things-High

Typesetting, Reproducing, and Related Machine Work

Typesetting means to set words and sentences into type so that they may be printed on a printing press. Reproducing means to make copies from an original document. Examples of workers in this group are Vari-Typist, Braille-Duplicating-Machine Operator, Digital-Computer Operator, Key-Punch Operator, Addressing-Machine Operator, and Linotype Operator.

WORK PERFORMED – What would you do as a worker in this field?

As a worker in this field you would set up, adjust, and operate some type of commercial machine such as a data processor, typesetter, linotype, duplicator, or addressor. Your work would usually be specialized and most of your time would be spent operating one machine accurately and at high speed.

WORKER REQUIREMENTS – What qualifications would you need?

You should be able to do well in this field if you (1) have the ability and willingness to follow instructions closely; (2) can do the same kind of work day after day without getting bored; (3) can pay attention to details and read well enough to avoid mistakes; (4) can distinguish small differences in shapes and spaces; (5) can coordinate the movement of your eyes and hands (make them work together) as your job requires; (6) can work quickly and accurately with your hands; and (7) enjoy using machines.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- good grades in business and commercial courses in high school
- typing ability
- training or experience operating business machines
- working on the school newspaper or yearbook
- helping in the school office

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Graduation from high school or business school, with commercial courses, including the methods of operating business machines, is usually the least amount of education that would be accepted for entry level jobs in this field. For some jobs, you would need special training in the operation of a certain machine. You can usually start in one of these jobs if you have a general knowledge of printing or reproducing equipment. Employers usually give new workers on-the-job training lasting from a few days to several months, depending upon the type of machine involved.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

2 Repeating activities or tasks of short duration according to a required routine procedure or sequence.

Y Working within precise limits or standards of accuracy.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

3 Activities of a routine, definite, organized nature.

9 Activities which are nonsocial and involve the use of machines, processes, or methods.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

2 Anything beyond short demonstration up to and including 30 days.

3 Over 30 days up to and including 3 months.

4 Over 3 months up to and including 6 months.

5 Over 6 months up to and including 1 year.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.			▨		
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.			▨		
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.			▨		
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.			▨	▨	
Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.			▨	▨	
K – MOTOR COORDINATION: ability to coordinate the use of eyes and hands or fingers rapidly and accurately to perform a task.			▨		
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.			▨	▨	
M – MANUAL DEXTERITY: ability to work easily and skillfully with the hands.			▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 3 4

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: L 4

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .382 .582

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

28	Typing and Related Recording
108	Motion Picture Projecting, Photographic Machine Work, and Related Activities
109	Radio and Television Transmitting and Receiving

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **274**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

24

Data-Average
People-Low
Things-Low

Classifying, Filing, and Related Work

Classifying means to arrange things in groups according to a plan. Filing means to put things away in a certain order. Examples of workers in this group are Library Cataloger, File Clerk, Inventory Clerk, Mail Carrier, Comparison Shopper, and Fingerprint Classifier.

WORK PERFORMED – What would you do as a worker in this field?

Work in this field mainly involves gathering, sorting, classifying, and/or filing information ranging from letters to fingerprints. Computing (figuring) such things as scores on civil service examinations, cost of postage, or supplies on hand may also be involved. You may have to keep records or prepare reports concerning postal charges, items in stock, materials removed from files, and worker assignments. Adding information to records already on file and searching for requested filed information may also be a part of your job.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this field require you to (1) read and understand written information, (2) be able to solve arithmetic problems, (3) pay close attention to details, and (4) be able to follow instructions or established procedures.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- liking to keep things in order
- being able to do work that is repeated, without getting bored
- good grades in commercial or business courses
- experience in using the card file in the library
- helping in the school office

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

The best way to get into this work is to complete business courses in high school and be able to show that you are familiar with basic office duties. Many employers give tests to pick the best people from among those who apply for work. Sometimes new employees are given up to three months of on-the-job training to help them learn the demands of a particular job.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

2 Repeating activities or tasks of short duration according to a required routine procedure or sequence.
3 Doing things only under specific instructions, allowing little or no room for independent action or judgment in working out job problems.
Y Working within precise limits or standards of accuracy.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

2 Activities involving business contact with people.
3 Activities of a routine, definite, organized nature.
9 Activities which are nonsocial and involve the use of machines, processes, or methods.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

2 Anything beyond short demonstration up to and including 30 days.
3 Over 30 days up to and including 3 months.
4 Over 3 months up to and including 6 months.
5 Over 6 months up to and including 1 year.
6 Over 1 year up to and including 2 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.			▨	▨	
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.			▨		
Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.			▨	▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 4 3

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: L 3 4

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .388

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

26 Computing and Related Recording
28 Typing and Related Recording
29 Routine Checking and Recording
19 Facilities, Services, and Movement Allocating and Expediting Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page 276. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

25

Data-Average
People-Low
Things-Low

Stenographic and Related Work

Stenography means to record (using shorthand) and then transcribe (type) speech or conversation in order to get a typed record of what is said. Examples of workers in this group are Court Reporter, Stenographer, and Stenotype Operator.

WORK PERFORMED – What would you do as a worker in this field?

This work includes using shorthand, which involves either writing or using a machine to record marks or symbols which can be translated into words. You would use shorthand to record what someone is saying at the speed he says it. (This activity is called "taking dictation.") After taking shorthand notes, you would use a typewriter to transcribe them into a letter or report as dictated.

WORKER REQUIREMENTS – What qualifications would you need?

To work in this field, you need to (1) be able to understand the meaning of words and how sentences are put together; (2) use your hands quickly and accurately; (3) write in shorthand (take dictation); (4) translate shorthand notes; (5) type; (6) get used to doing the same kind of work over and over; (7) be attentive to detail to avoid errors in your shorthand and typing; (8) be able and willing to follow instructions closely; and (9) be able to understand and work with a special vocabulary, such as that used in law, medicine, engineering, or some other field of work.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- success in typing and shorthand courses
- being secretary for a club or group
- taking good notes during classroom discussions
- doing homework neatly and accurately

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

A job in this field usually requires graduation from high school with special training in shorthand and typing. You might also get the necessary training in a business school. In either case, you would probably have to pass shorthand and typing tests before being employed.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

2 Repeating activities or tasks of short duration according to a required routine procedure or sequence.
3 Doing things only under specific instructions, allowing little or no room for independent action or judgment in working out job problems.
Y Working within precise limits or standards of accuracy.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

3 Activities of a routine, definite, organized nature.
6 Activities concerned with people and the communication of ideas.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

4 Over 3 months up to and including 6 months.
5 Over 6 months up to and including 1 year.
6 Over 1 year up to and including 2 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

	ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY				
	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.			▨	▨	
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.			▨	▨	
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.				▨	
Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.				▨	
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.			▨	▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **3**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **L 4 5 6**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.388**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

18	Secretarial and Related Work
28	Typing and Related Recording
24	Classifying, Filing, and Related Work
15	Corresponding and Related Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **278**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

26

Data-Average
People-Low
Things-Low

Computing and Related Recording

Computing means to solve problems by using mathematics. Recording means to keep track of figures by placing them on special forms. Examples of workers in this group are Bookkeeper, Bookkeeping-Machine Operator, Payroll Clerk, Medical-Record Clerk, Accounting Clerk, and Insurance Clerk.

WORK PERFORMED – What would you do as a worker in this field?

Work in this field includes solving arithmetic problems and preparing numerical records. In doing this work you would probably use a typewriter, and billing, bookkeeping, adding, or calculating machines. Your work might involve figuring workers' salaries, computing how much it would cost your company to produce an item, determining how much money has been put into bank accounts according to records of deposit, and/or verifying (checking) the arithmetic used in figuring accounts.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this field require you to (1) learn step-by-step methods of gathering information and keeping records, (2) be able to correct errors in or solve arithmetic problems, (3) pay close attention to details to avoid errors, (4) recognize differences in shapes and sizes, (5) coordinate the movement of your hands and eyes (make them work together) the way your job requires, and (6) use your hands and fingers rapidly and accurately in operating business machines.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- good grades in arithmetic courses
- average or better grades in bookkeeping or other business courses
- being able to do the same type of work from day to day without getting bored

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Entrance into this kind of work usually requires graduation from high school and business school with average or better grades in arithmetic. For some jobs, you would need training in the use of one or more types of business machines. For many beginning positions, you would need only a general knowledge of the duties and equipment involved. Depending upon the work or the machine involved, an employer might give you on-the-job training, lasting from a few days to several months.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

3 Doing things only under specific instructions, allowing little or no room for independent action or judgment in working out job problems.

Y Working within precise limits or standards of accuracy.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

3 Activities of a routine, definite, organized nature.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

3 Over 30 days up to and including 3 months.
4 Over 3 months up to and including 6 months.
5 Over 6 months up to and including 1 year.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.			▨	▨	
N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.			▨	▨	
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.		▨	▨		
Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.			▨	▨	
K – MOTOR COORDINATION: ability to coordinate the use of eyes and hands or fingers rapidly and accurately to perform a task.			▨	▨	
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.			▨	▨	
M – MANUAL DEXTERITY: ability to work easily and skillfully with the hands.			▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **3 4**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: S L 4 6

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .388 .488

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

13 Accounting, Auditing, and Related Work
20 Paying and Receiving (Banks and Other Establishments)
21 Cashiering (Drug Stores, Theaters, Restaurants, and Related Establishments)
29 Routine Checking and Recording

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **280**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

27

Data Average
People Low
Things Average

Sorting, Inspecting, Measuring, and Related Work

Sorting means to separate things into groups according to type or to their likenesses and differences. Inspecting means to examine carefully to determine if size, shape, or quality, meets set standards. Measuring means to determine extent (how far something reaches), size (how big it is), quantity (how many there are), or capacity (how much something will hold). This field of work covers a wide variety of jobs in many industries. Examples of workers in this group are Mail Sorter, Egg Grader, Currency Sorter, Weaving Inspector, Shipping Clerk, and Finished-Stock Inspector.

WORK PERFORMED – What would you do as a worker in this field?

In this field, your job would be to examine, measure, or weigh objects. You might do this to determine if they were made exactly according to plan, if there is anything wrong with them, or to sort them according to their class, size, or condition. You might, for example, sort eggs according to size and color, or measure the length and thickness of bolts, or examine machine parts to determine whether they are useable.

You would have to be accurate in this kind of work and would often work under close supervision. Depending on your particular job, you might use such measuring devices as gages, calipers, micrometers, or scales. You might also make special use of one or more of your primary senses (sight, hearing, smell, and touch).

WORKER REQUIREMENTS – What qualifications would you need?

To be good at this work, you need to (1) be able and willing to follow instructions exactly; (2) be able to detect (see) small differences in shapes and sizes, and notice small details; (3) use your fingers and hands quickly and accurately; (4) coordinate the use of your eyes and hands (make them work together) as your job requires; and (5) be satisfied to do the same kind of work over and over.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- success in shop classes in high school
- using detailed plans to build models
- ability to do the same type of work over and over without getting bored or making mistakes

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

You would usually learn to do this kind of work through on-the-job training lasting from a few hours to several months, depending upon the skill needed. Many employers prefer workers with no experience; they look for people who are physically able, who are dependable, who have good eyesight, and who can follow instructions. Many of the larger employers give tests to help select new workers.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

2 Repeating activities or tasks of short duration according to a required routine procedure or sequence.
3 Doing things only under specific instructions, allowing little or no room for independent action or judgment in working out job problems.
0 Rating information using standards that can be measured or checked.
Y Working within precise limits or standards of accuracy.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

1 Activities dealing with things and objects
3 Activities of a routine, definite, organized nature
9 Activities which are nonsocial and involve the use of machines, processes, or methods

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

2 Anything beyond short demonstration up to and including 30 days.
3 Over 30 days up to and including 3 months.
4 Over 3 months up to and including 6 months.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.		▨	▨		
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.		▨	▨		
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.		▨	▨		
Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.		▨	▨		
K – MOTOR COORDINATION: ability to coordinate the use of eyes and hands or fingers rapidly and accurately to perform a task.		▨	▨		
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.		▨	▨		
M – MANUAL DEXTERITY: ability to work easily and skillfully with the hands.		▨	▨		
C – COLOR DISCRIMINATION: ability to recognize likenesses and differences in colors and shades, to identify or match specific colors, and to select color combinations which go well together.	▨	▨	▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicates the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **3 2 1**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **S L M 4 5 6**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.484 .485 .487 .584 .585 .587 .683 .684 .685 .687**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

22	Inspecting and Stock Checking
29	Routine Checking and Recording
84	Tending

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **282**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

28

Data Average
People-Low
Things-Low

Typing and Related Recording

Typing and related recording is concerned with recording or transmitting (sending) messages, either in words or in code, by using a typewriter or other machine. Examples of workers in this group are Typist, Transcribing-Machine Operator, Data Typist, and Music Copyist.

WORK PERFORMED – What would you do as a worker in this field?

As a worker in this field you would operate a typewriter or a typewriter-like machine such as the ones described below. The **teletypewriter** is used to send messages by wire from one location to another, where they are typed automatically. The **tape perforator** changes words into a series of holes in a tape, after which the tape is fed into another machine which sets the original words into type for a printing press. The **Braille machine** produces raised dots on paper which allow blind people to read by feeling the dots.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this field require you to (1) pay close attention to details, (2) use your hands and fingers rapidly and accurately, (3) adjust yourself to doing the same kind of work over and over, (4) recognize differences in shapes and sizes, and (5) work well under the direction of others.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- success in typing and other business courses
- working as a typist in the school office or for the school paper
- ability to do the same type of work day after day without getting bored
- following directions accurately, as in classwork or hobbies

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Many of the workers who enter this field are high school or business school graduates who have taken typing and other business courses. For many typing and related jobs you would need to pass a typing test. Where the operation of specific machines is required, on-the-job training is usually given by your employer to help you gain the necessary skills.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

2 Repeating activities or tasks of short duration according to a required routine procedure or sequence.
3 Doing things only under specific instructions, allowing little or no room for independent action or judgment in working out job problems.
Y Working within precise limits or standards of accuracy.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

3 Activities of a routine, definite, organized nature

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

3 Over 30 days up to and including 3 months.
4 Over 3 months up to and including 6 months.
5 Over 6 months up to and including 1 year.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.		▨	▨		
Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.			▨	▨	
K – MOTOR COORDINATION: ability to coordinate the use of eyes and hands or fingers rapidly and accurately to perform a task.			▨	▨	
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.			▨	▨	
M – MANUAL DEXTERITY: ability to work easily and skillfully with the hands.			▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicates the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 3 4

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: S L 4 6

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .588

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

18	Secretarial and Related Work
24	Classifying, Filing, and Related Work
25	Stenographic and Related Work
23	Typesetting, Reproducing, and Related Machine Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **287**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

Routine Checking and Recording

Routine checking and recording means to use standard, fixed methods to gather and record business information. Examples of workers in this group are General Clerk, Insurance Clerk, Traffic Clerk, and Meter Reader.

WORK PERFORMED – What would you do as a worker in this field?

As a worker in this field, you would use standard methods to record information on specific business forms. You would check information for accuracy and enter it on such forms as stocklists, bookkeeping ledgers, and registers. Specific duties might include copying information from one record to another; typing bills or statements; sorting and filing records; filling out forms for insurance, employment, or shipping; checking meters and recording amounts of electricity, water, or gas used; or keeping track of materials shipped and received. You might also perform such duties as answering the phone and sorting mail.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this field require you to (1) know common record-keeping methods, (2) keep accurate and readable records, (3) perform tasks such as sorting bills and receipts, (4) pay close attention to details, (5) be willing to perform the same tasks day after day, and (6) be able to work simple arithmetic problems when required.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- experience as club secretary or treasurer
- preference for routine tasks in a well-organized work setting
- success in record-keeping or typing courses
- experience helping in the school office

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

High school courses such as bookkeeping and typing will provide you with a background of basic clerical skills. Once on the job, you would be given time and help to learn to use the specific forms and methods required by your employer.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

2 Repeating activities or tasks of short duration according to a required routine procedure or sequence.

Y Working within precise limits or standards of accuracy.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

3 Activities of a routine, definite, organized nature – rather than – activities of an unusual, indefinite nature which require creative imagination.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

2 Anything beyond short demonstration up to and including 30 days.
3 Over 30 days up to and including 3 months.
4 Over 3 months up to and including 6 months.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.		▨	▨		
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.		▨	▨		
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.		▨			
Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.				▨	▨
K – MOTOR COORDINATION: ability to coordinate the use of eyes and hands or fingers rapidly and accurately to perform a task.		▨	▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicates the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **3**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **S L 4 6**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.588 .688**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

24	Classifying, Filing, and Related Work
102	Customer Service Work, n.e.c.
27	Sorting, Inspecting, Measuring, and Related Work
28	Typing and Related Recording

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **289**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

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Data-Low
People-Average
Things-High

Switchboard Service

A switchboard is a piece of telephone equipment used to connect or relay telephone calls. The switchboard may be one of two types: the **cord** type uses a system of wires which are plugged into sockets to connect telephone lines; the **cordless** type uses a system of buttons which are pushed to do the same job. Examples of workers in this group are Telephone Operator, Information Operator, Centeral-Office Operator, and Telephone-Answering Service Operator.

WORK PERFORMED – What would you do as a worker in this field?

As a switchboard service worker, you would operate a switchboard to connect incoming and internal (inside) calls to phones in an establishment. You would also make connections with external (outside) lines for outgoing calls. In addition, you might take messages, give information to callers, record the number of calls made through your switchboard, and record the cost of long-distance calls.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this area require that you (1) be thoughtful of others, (2) use your hands and fingers quickly and accurately, (3) be able to adjust to doing the same type of work over and over, (4) deal with people effectively, and (5) hear and speak well.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- ability to talk with people easily
- pleasant speaking voice
- commercial course in high school

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

You would probably start in this field with on-the-job training. Employers usually prefer people who have a pleasant personality and speaking voice, and are able to deal effectively with the public. Commercial courses in school provide a good background for entry into this type of work.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

2 Repeating activities or tasks of short duration according to a required routine procedure or sequence.

5 Dealing with people in actual job duties beyond giving and receiving instructions.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

2 Activities involving business contact with people.

3 Activities of a routine, definite, organized nature.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

3 Over 30 days up to and including 3 months.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

APTITUDES	ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY				
	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.			▨		
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.			▨		
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.			▨	▨	
Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.			▨		
K – MOTOR COORDINATION: ability to coordinate the use of eyes and hands or fingers rapidly and accurately to perform a task.			▨		
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.			▨		
M – MANUAL DEXTERITY: ability to work easily and skillfully with the hands.			▨	▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **3**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **L 4 5 6**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.862**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

29	Routine Checking and Recording
103	Miscellaneous Customer Service Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **291**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

31

Data-High
People-Low
Things-Low

Social Science, Psychological, and Related Research

Social science is the study of people, their language, culture, economic conditions, activities, and customs. This includes the areas of history, sociology, economics, and civics. Psychology is the science which studies human behavior. Research conducted in these fields tries to explain the actions, throughts, and feelings of people, either as groups or as individuals. Examples of workers in this group are Psychologist, Economist, Political Scientist, Historian, Sociologist, Job Analyst, and Economic Geographer.

WORK PERFORMED – What would you do as a worker in this field?

As a worker in this group, you would be concerned with conducting (carrying on) research about various elements of society, such as racial groups, economic conditions or government, or about characteristics of individuals, such as intelligence, personality, social adjustment, or work abilities.

In conducting your research, you would collect information, organize it, and translate it into meaningful terms. Based on this collected information, you would form or develop original theories, methods, techniques, or procedures to solve problems or to add to a specific area of knowledge. You would communicate the findings of your research to others through lectures, reports, articles, or books.

WORKER REQUIREMENTS – What qualifications would you need?

To do this type of work you should be able to (1) understand the area of investigation, the purpose of your research, and the most effective methods to be used; (2) speak and write clearly; (3) complete work on schedule; (4) reason (think things through clearly); (5) invent new and better ways of doing things; (6) discover how things work or happen; and (7) in some cases, understand and use higher mathematics, such as statistics and analytical mathematics.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- good grades in math and language courses
- being active in club work or in group discussions
- being a member of the debate team
- good grades on written work
- enjoyment of reading as a leisure time activity
- interest in current events and social problems

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

With a bachelor's degree (four years of college) in economics, it might be possible for you to get a beginning level job doing routine research and development work in government or industry. For the most part, however, a bachelor's degree is not enough preparation for higher level employment in the social sciences or in psychology. For such jobs you need a master's degree (a year or more beyond the bachelor's) in social science to qualify for a teaching job at the college level or for one of the many nonteaching jobs in government or industry. In some of the social sciences, such as anthropology, course work and field experience (supervised work experience) are needed for the master's degree.

With a master's degree in psychology, you would probably not be able to teach at the college level but might assist in making tests or helping with laboratory experiments. To teach, to do important research, or to hold an administrative position, a doctor's degree (two to four years beyond the master's) is required.

Many graduate schools (those which offer courses beyond the bachelor's degree level) provide part time or temporary jobs for students who are working on their master's or doctor's degree.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

4 Directing, controlling, and planning an entire activity or activities of others.
9 Rating information by using personal judgment.
0 Rating information using standards that can be measured or checked.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

6 Activities concerned with people and the communication of ideas.

7 Activities of a scientific and technical nature.

8 Activities of an unusual, indefinite nature which require creative imagination.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

7 Over 2 years up to and including 4 years.
8 Over 4 years up to and including 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	▨
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.				▨	▨
N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.			▨	▨	▨
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.			▨	▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 5 6

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: S 5

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .088

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

44	High School, College, University, and Related Education
87	Scientific Research
11	Consultative and Business Services

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **294**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

32

Data-High
People-High
Things-Low

Guidance and Counseling

Guidance means to assist individuals or groups of people in such matters as career choice, educational planning, social adjustment, or the development of moral and religious values and standards. Counseling means helping individuals on a person-to-person basis to increase their self-understanding and to make wise personal plans or solve personal problems. Examples of workers in this group are School Counselor, Rehabilitation Counselor, Minister, Missionary, Rabbi, Priest, Social Worker, Probation Officer, and Parole Officer

WORK PERFORMED – What would you do as a worker in this field?

In guidance and counseling work, your major responsibility would be to help people to develop the ability to conduct their lives in a constructive and meaningful way. This would include helping already well-adjusted people to make educational and vocational (career) plans, or it might include counseling (talking with them) and helping them to solve personal problems.

Tasks of different workers in this group might include (1) helping prison parolees get jobs and adjust to society (Parole Officer); (2) informing high school students about job or training opportunities and requirements (School Counselor); (3) conducting (directing) church and other religious services such as weddings, funerals, or baptisms (Minister, Priest, or Rabbi); (4) diagnosing (studying) people's mental or emotional problems and providing treatment (Psychologist); or (5) helping families that need financial or other assistance from a social or welfare agency (Social Worker). Interviewing and counseling are performed by all workers in this group.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this field require that you have a desire to help people. You should also be able to (1) understand how people grow and develop, (2) gain the necessary knowledge of guidance and counseling methods and put to use what you have learned, (3) help others develop the ability to plan and make decisions, (4) talk understandably with all kinds of people, (5) plan and direct guidance programs, and (6) act in a manner that will help people to like and trust you. Some jobs have special requirements, such as the ability to speak in public or knowledge of the use of tests to measure intelligence, interest, or aptitude (ability to learn).

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- volunteer work for church or welfare group
- holding an elective office in a club
- success in speaking before groups of people
- getting good grades and doing extra reading in social studies or psychology
- enjoyment in working with people and helping them work out their problems

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

To enter this field, you would need at least a college degree. In most cases, you would be required to have even more education than that provided by a four-year (bachelor's) degree. Most city and state governments and private organizations require two years of graduate study beyond the bachelor's degree for those who go into social work.

To do school-counseling work, you would generally need to earn a counseling certificate (license) in addition to being an experienced teacher. Most states give counselor certificates only to those who have a master's degree (next level after bachelor's), or a similar level of training, in addition to teaching experience. Many different jobs in industry are open to those who have a graduate degree (master's or doctor's). (A doctor's degree is the highest level of education and usually takes three to six years of study beyond a bachelor's degree.)

Religious jobs in this field usually require a bachelor's degree plus additional college training, which includes special instruction in a particular religion.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

4 Directing, controlling, and planning an entire activity or activities of others.

5 Dealing with people in actual job duties beyond giving and receiving instructions.

9 Rating information by using personal judgment.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

4 Activities which involve direct personal contact, to help people or deal with them for other purposes.

5 Activities which bring recognition or appreciation by others.

6 Activities concerned with people and the communication of ideas.

8 Activities of an unusual, indefinite nature which require creative imagination.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

7 Over 2 years up to and including 4 years.
8 Over 4 years up to and including 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	▨
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.				▨	▨

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicates the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 5 6

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: S L M 4 5 6

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .108 .208

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

6	Administration
12	Interviewing, Information-Giving, and Related Work (Vocational, Educational, and Related Activities)
44	High School, College, University, and Related Education
31	Social Science, Psychological, and Related Research

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **296**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

33

Data-High
People-High
Things-High

Supervisory Work Farming, Logging, Manufacturing, Processing, Construction, Transportation, and Related Activities (Working Supervisors)

Supervising means to plan, schedule, and direct the work of others. Being able to perform the work of those you supervise is essential in this worker trait group. Examples of workers in this group are Chef, Garage Foreman, Farm Foreman, Sewing-Room Foreman, Machine-Shop Foreman, Pipe-Fitter Foreman, Labor-Crew Foreman, and Painter Foreman.

WORK PERFORMED – What would you do as a worker in this field?

In this field, you would supervise the work of others involved in physical activities in such areas as farming, logging, manufacturing, processing, construction, and transportation. You would need to be able to perform the work of those you supervise as you would sometimes need to take part in the work being done. Your skills for supervising a particular field of work should include the efficient use of the methods, materials, tools, and machines involved.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this field require you to (1) understand, learn, and apply the methods and procedures used in a particular area of work; (2) give proper instruction to those you supervise; (3) demonstrate your skill and knowledge by working on difficult parts of a job with the workers under your supervision; (4) take the lead in getting work started and completed successfully; and (5) get along well with workers and help them get along with each other.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- enjoyment of physical activities
- good physical condition
- ability to plan activities for others to carry out (as in coaching a little league team)
- leadership in school, club, or community activities
- success in vocational (trade) training

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Because you need the skills and knowledge of a particular trade or craft and mastery of its tools and machines before you can supervise others performing such work, the usual way to become a supervisor is to work up through the regular working ranks.

Skills in a particular trade or craft might be learned in a vocational or technical course, by on-the-job training furnished by the employer, or by working up from a lower-level, related job. Skills for supervisory work might be learned by experience alone or by experience together with courses in supervision or foremanship. These may be furnished by the employer or obtained in technical schools or adult education programs.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

1 Performing a variety of duties which may often change.
4 Directing, controlling, and planning an entire activity or activities of others.
5 Dealing with people in actual job duties beyond giving and receiving instructions.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

5 Activities which bring recognition or appreciation by others.
9 Activities which are nonsocial and involve the use of machines, processes, or methods.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

7 Over 2 years up to and including 4 years.
8 Over 4 years up to and including 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.			▨		
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.			▨	▨	
K – MOTOR COORDINATION: ability to coordinate the use of eyes and hands or fingers rapidly and accurately to perform a task.			▨		
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.			▨	▨	
M – MANUAL DEXTERITY: ability to work easily and skillfully with the hands.			▨	▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **4**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **L M H 2 3 4 5 6**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.130 .131 .132 .133 .134 .137**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

85 Supervisory Work (Service and Related Activities)
34 Supervisory Work (Farming, Logging, Manufacturing, Processing, Construction, Transportation, and Related Activities) (Non-Working Supervisors)

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **299**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

Supervisory Work Farming, Logging, Manufacturing, Processing, Construction, Transportation, and Related Activities (Non - Working Supervisors)

34

Data-High
People-High
Things-Low

Supervising means to plan, schedule, and direct the work of others. Being able to perform the work of those supervised is not essential for workers in this group. Examples of workers in this group are Production Foreman, Timber Boss, Stage-Property Foreman, Baggage and Mail Agent, and Assembly-Line Foreman.

WORK PERFORMED – What would you do as a worker in this field?

Workers in this job group are concerned with planning and directing the work of others involved in physical activities in such areas as farming, logging, manufacturing, processing, construction, and transportation. To be a supervisor of these types of jobs, it would not be essential for you to be able to do the work of those you supervise. Your main duty would be to see that they do their work according to plan.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this field require you to (1) understand and explain the methods of the work being supervised, (2) plan and assign (give) duties to workers, and (3) get along well with workers and help them get along among themselves.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- ability to plan work for others to carry out (as in coaching a sand lot team)
- success in vocational training in school
- being elected to an office of a school class or club
- experience as a committee chairman or program organizer

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

To enter this field, you would probably be selected from among the regular workers if you were doing an outstanding job. Technical courses related to your area of work or experience in more than one of the jobs to be supervised will increase your chances of being selected.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

1 Performing a variety of duties which may often change.
4 Directing, controlling, and planning an entire activity or activities of others.
5 Dealing with people in actual job duties beyond giving and receiving instructions.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

5 Activities which bring recognition or appreciation by others.
9 Activities which are nonsocial and involve the use of machines, processes, or methods.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

6 Over 1 year up to and including 2 years.
7 Over 2 years up to and including 4 years.
8 Over 4 years up to and including 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.			▨	▨	
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.			▨	▨	
N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.		▨	▨		
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.		▨	▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 4 5

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: S L 5 6

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .138

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

6 Administration
10 Managerial Work
33 Supervisory Work (Farming, Logging, Manufacturing, Processing, Construction, Transportation, and Related Activities) (Working Supervisors)

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook,** the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page 305. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

35

Data-High
People-Average
Things-High

Costuming, Tailoring, and Dressmaking

Costuming, tailoring, and dressmaking are similar in that they all involve skilled handwork in the production of clothing such as suits or dresses, or of costumes for special purposes. Examples of workers in this group include Master Tailor, Dressmaker, and Costumer.

WORK PERFORMED – What would you do as a worker in this field?

Work in this field is primarily concerned with designing and producing tailored garments (clothing or costumes) which are made according to the specific measurements of the wearer. As a garment maker, you would usually follow instructions for style and material which are set by the individual wearer. The work involves drawing or restyling patterns to suit the wearer's tastes and measurements, cutting out the cloth using a pattern, joining the cloth pieces by hand or machine, and pressing the finished garment. Fitting the garment on the wearer may identify the need to alter (re-work) the garment for a better fit.

Some jobs in this field are concerned only with altering or repairing ready-made garments.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this field require you to (1) make patterns and put clothing together; (2) imagine how a completed article of clothing would look on the wearer from looking at measurements, sketches, and patterns; (3) see fine stitching when you are fitting and putting together the parts of a garment (good eyesight); (4) use your fingers accurately for neat hand sewing; (5) do fine and exact work that requires constant attention to detail; (6) appreciate beauty, style, and design; and (7) have patience when making or altering clothes for hard-to-fit people.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- good grades in courses in dressmaking, tailoring, or costuming
- making your own clothes, or costumes for a play
- success in sketching or dress designing as a hobby
- experience in repairing or altering clothing

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

It usually takes at least four years to become a journeyman-level tailor or dressmaker. This means that the worker is capable, skilled, dependable, and experienced. You might begin to learn the trade by doing simple sewing jobs under the direction of an experienced dressmaker or tailor. The most likely places to look for jobs would be in retail establishments (stores or tailor shops) which make and sell made-to-measure clothing, fine garment companies, and costume agencies. Employment also exists in the show business world where garments are needed in live entertainment, movies, television, and theater productions. Your chances to advance depend upon where you work and the kinds of tasks you can do. Supervisory positions in the garment industry are usually filled by journeymen tailors. To find opportunities in design work you must show that you have creative ability.

Qualifications Profile

TEMPERAMENTS -- The different kinds of working conditions or situations workers in this group must adjust to include

5 Dealing with people in actual job duties beyond giving and receiving instructions.
9 Rating information by using personal judgment.
0 Rating information using standards that can be measured or checked.
Y Working within precise limits or standards of accuracy.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

1 Activities dealing with things and objects.
9 Activities which are nonsocial and involve the use of machines, processes, or methods.
0 Activities which bring personal satisfaction from working on or producing things.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

7 Over 2 years up to and including 4 years.
8 Over 4 years up to and including 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.				▨	
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.			▨		
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.				▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 4 3

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: L 4 6

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.261 .361**

RELATED GROUPS OF JOBS – Other groups of jobs related to Decorating and Art Work described in this publication are

4	Art Work
2	Decorating and Art Work
37	Craftsmanship and Related Work
5	Artistic Restoration, Decoration, and Related Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **308**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

36

Data-High
People-Low
Things-High

Cooking and Related Work

Cooking means to use heat to prepare foods to be eaten. Examples of workers in this group are Pizza Baker, Cook, Pastry Cook, Special-Diet Cook, and Short-Order Cook.

WORK PERFORMED – What would you do as a worker in this field?

Planning and preparing meals or special foods would be your main task as a worker in this field. You might be an all-around cook who prepares a variety of foods or a cook of special foods such as pizza, pastry, fish, or foreign foods. Employment would usually be found in private homes, or in places which serve large numbers of people, such as restaurants, hotels, camps, school cafeterias, and ranches.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this field require you to (1) be able to learn how to prepare food, (2) plan menus and estimate quantities and costs of supplies, (3) prepare food arrangements or displays, and (4) use kitchen tools and utensils safely and accurately. In addition, you need to be healthy enough to pass a strict physical examination to get a health card or certificate (license) from the health department, which is generally required of people working with food. Finally, you may have to be willing to wear a uniform.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- success in courses in cooking and food preparation
- winning awards in cooking or baking contests
- experience in cooking meals at home
- having a particular kind of cooking as a hobby or specialty

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

One method of entry into this field is work experience in a kitchen under the direction of a fully qualified cook. In some of the larger cities, apprenticeship programs are available which allow a beginning worker to earn as he learns. Cooks in large hotels and restaurants are often graduates of cooking schools which require the completion of at least the eighth grade by anyone who wants to enroll. Some high schools and vocational schools offer training as a chef or cook. In addition, high school or college home economics graduates can enter this field and become qualified cooks after on-the-job training.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

1 Performing a variety of duties which may often change.
9 Rating information by using personal judgment.
Y Working within precise limits or standards of accuracy.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

9 Activities which are nonsocial and involve the use of machines, processes, or methods.
0 Activities which bring personal satisfaction from working on or producing things.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

4 Over 3 months up to and including 6 months.
5 Over 6 months up to and including 1 year.
6 Over 1 year up to and including 2 years.
7 Over 2 years up to and including 4 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.			▨		
N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.		▨	▨		
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.			▨		
Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.		▨			
K – MOTOR COORDINATION: ability to coordinate the use of eyes and hands or fingers rapidly and accurately to perform a task.		▨			
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.		▨	▨		
M – MANUAL DEXTERITY: ability to work easily and skillfully with the hands.			▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **3 4**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **L M 4 6**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.281 .381**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

37 Craftsmanship and Related Work
5 Artistic Restoration, Decoration, and Related Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **310**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

37

Data-High
People-Low
Things-High

Craftsmanship and Related Work

A craft is an occupation or trade which requires specialized knowledge, plus skill in the use of the hands, arms, and fingers, as well as of hand tools and sometimes of machines. Examples of workers in this group are Embalmer, Jeweler, Gunsmith, Photoengraver, Carpenter, Automobile Mechanic, and Radio Repairman.

WORK PERFORMED – What would you do as a worker in this field?

Work activities in this field are concerned with making, processing, rebuilding, or repairing such products or objects as automobiles, guns, jewelry, radios, printing plates, and wooden structures. They involve manual skills (the skillful use of the hands) in working with tools such as wrenches, routers, saws, hammers, and chisels, and in operating the machines used in this field. A thorough knowledge of the materials, tools, and methods of a craft is also needed. You would rely on this knowledge and on work experience in making decisions about the selection of parts, materials, tools, or methods to be used for a specific work assignment. In performing your work, you would follow some type of guideline such as customer instruction, blueprint design, or technical standards.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this field require you to (1) learn and put to use craft skills and techniques (methods); (2) use your own judgment in planning the order of your work and in selecting the proper tools; (3) take responsibility for doing the work according to established standards of quality; (4) be able to apply shop mathematics to practical problems; (5) imagine how a product would look when completed, by looking at blueprints or diagrams; (6) determine fine differences in shapes, sizes, and textures; (7) coordinate the movement of your eyes and hands (make them work together) the way your job requries; and (8) use your hands and fingers accurately when doing detailed work with hand tools and hand-controlled power tools.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- model building or some type of handicraft as a hobby
- success in industrial arts or vocational education classes
- military training or experience in craft-related activities
- skill in repairing things

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Apprenticeship, on-the-job training, and vocational training are generally considered to be the best methods of entering a craft or trade. Training periods usually last from two to six years. Many companies have on-the-job training programs which allow you to work under the direction of a skilled craftsman. You would begin with simple work and advance as you learn the more difficult tasks. The training period in some crafts might be shortened if you have had some previous training in a trade school or in the armed services. Craftsmen who are familiar with the skills of their trade through apprenticeship training often have the best chance to advance to supervisory positions. Some jobs in this group require more specific educational and training requirements. In most states, for example, a person wishing to become a licensed embalmer must have two years of college, plus twelve months in an embalming school, followed by a year's internship (on-the-job training) before he can take the state board examination for a license.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

0 Rating information using standards that can be measured or checked.

Y Working within precise limits or standards of accuracy.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

1 Activities dealing with things and objects.

9 Activities which are nonsocial and involve the use of machines, processes, or methods.

0 Activities which bring personal satisfaction from working on or producing things.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

6 Over 1 year up to and including 2 years.
7 Over 2 years up to and including 4 years.
8 Over 4 years up to and including 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

	ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY				
	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.			▨	▨	
N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.		▨	▨	▨	
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.			▨	▨	
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.		▨	▨	▨	
K – MOTOR COORDINATION: ability to coordinate the use of eyes and hands or fingers rapidly and accurately to perform a task.			▨	▨	
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.			▨	▨	
M – MANUAL DEXTERITY: ability to work easily and skillfully with the hands.			▨	▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 4 3

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: L M H 2 3 4 6

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .281 .381

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

56 Drafting and Related Work
39 Manipulating
36 Cooking and Related Work
38 Precision Working

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page 312. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

38

Data-Low
People-Low
Things-High

Precision Working

Precision working means being exact and accurate in performing specific work tasks. Examples of workers in this group are Meat Butcher, Machine Assembler, Lens Grinder, Mold Maker, and Structural-Steel Worker.

WORK PERFORMED - What would you do as a worker in this field?

Jobs in this field involve using the hands, hand tools, or work aids to perform work activities according to precise standards. Although the procedures followed and their sequence (order) are established for most work assignments, you would need to exercise personal judgment in applying them to a specific task It would be your responsibility to see that the work meets the strict requirements of exactness and accuracy that have been established for it.

Some typical precision work activities include dividing and weighing portions of meat, assembling machines and machine parts, grinding and polishing optical (eyeglass) lenses, building forms (molds) for concrete or tile products, or placing and fastening steel beams.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this field require you to (1) use your hands and fingers quickly and accurately, (2) coordinate the movement of your eyes and hands (make them work together) the way your job requires, (3) be able to recognize small differences in sizes and shapes, and (4) be able to do precise work according to established standards. You should also like to work with your hands.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- success in craft courses
- doing craft work (woodworking, ceramics, etc.) as a hobby
- being an amateur radio operator
- building accurate models of cars or planes or other objects
- enjoyment in doing detailed work with your hands

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

The most common ways of getting into this field are through an apprenticeship program or through on-the-job training in the kind of work you want to do. Similar, but less complicated jobs are also stepping stones to jobs in this field.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

1 Performing a variety of duties which may often change.
9 Rating information by using personal judgment.
0 Rating information using standards that can be measured or checked.
Y Working within precise limits or standards of accuracy.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

1 Activities dealing with things and objects.
9 Activities which are nonsocial and involve the use of machines, processes, or methods.
0 Activities which bring personal satisfaction from working on or producing things.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

5 Over 6 months up to and including 1 year.
6 Over 1 year up to and including 2 years.
7 Over 2 years up to and including 4 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.		▨	▨		
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.			▨	▨	
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.		▨	▨	▨	
K – MOTOR COORDINATION: ability to coordinate the use of eyes and hands or fingers rapidly and accurately to perform a task.			▨	▨	
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.			▨	▨	
M – MANUAL DEXTERITY: ability to work easily and skillfully with the hands.			▨	▨	
E – EYE-HAND-FOOT COORDINATION: ability to coordinate the movements of the hands and feet according to visual signals and directions.		▨	▨	▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 3

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: S L M H 3 4 6

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .781

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

39 Manipulating
37 Craftsmanship and Related Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **319**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

39

Data-Low
People-Low
Things-Average

Manipulating

Manipulating means handling, moving, or controlling an object skillfully by using the hands. Examples of workers in this group are Lumberjack (Faller), Fire Fighter, Janitor, Dispensing Optician, Skin Diver, Duplicating Machine Operator, Parking Meter Collector, Furniture Cleaner, Weaver, and Bookbinder.

WORK PERFORMED – What would you do as a worker in this field?

Work in this field calls for the skillful use of your hands, hand tools, or special devices to work, move, guide, or place objects or materials. Depending upon your specific job, you would probably have to make decisions about what tools, materials, or methods to use; for the most part, these decisions would be fairly obvious. Usually you would not work with or around machines, and you might work either indoors or outdoors.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this field require you to (1) coordinate the movement of your eyes and hands (make them work together) as the job requires, (2) use your hands and fingers rapidly and accurately, (3) recognize differences in shapes and sizes, (4) work according to established standards and requirements, and (5) adjust to doing the same kind of work over and over. You should also like to work with your hands.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- success in craft courses
- model building as a hobby
- using your hands to make things
- liking to fish or hunt

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

The usual ways to get started in this field are through apprenticeship programs and on-the-job training. Sometimes work experience gained in a similar but less complicated type of job will help you to get started in this field.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

Z Repeating activities or tasks of short duration according to a required routine procedure or sequence.

Y Working within precise limits or standards of accuracy.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

1 Activities dealing with things and objects.

3 Activities of a routine, definite, organized nature.

9 Activities which are nonsocial and involve the use of machines, processes, or methods.

0 Activities which bring personal satisfaction from working on or producing things.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

2 Anything beyond short demonstration up to and including 30 days.
3 Over 30 days up to and including 3 months.
4 Over 3 months up to and including 6 months.
5 Over 6 months up to and including 1 year.
6 Over 1 year up to and including 2 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.		▨	▨		
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.		▨	▨		
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.		▨	▨		
K – MOTOR COORDINATION: ability to coordinate the use of eyes and hands or fingers rapidly and accurately to perform a task.		▨	▨		
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.		▨	▨		
M – MANUAL DEXTERITY: ability to work easily and skillfully with the hands.		▨	▨		
E – EYE-HAND-FOOT COORDINATION: ability to coordinate the movements of the hands and feet according to visual signals and directions.	▨	▨			

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 2 3

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: S L M H 2 3 4 6

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .884

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

37	Craftsmanship and Related Work
84	Tending
51	Feeding-Offbearing
52	Handling

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **322**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

40

Data-High
People-High
Things-Low

Supervisory and Instructive Work

Nursing and Related Services

Supervising means to direct and control the activities of others. Instructing means to teach others. Examples of workers in this group are Head Nurse, School Nurse, Nurse Instructor, Nurse Supervisor, Dietary Consultant, Teaching Dietitian, and Medical Technologist Teaching Supervisor.

WORK PERFORMED – What would you do as a worker in this field?

Your activities in this field would include planning, setting up, and conducting (directing) programs to educate people for occupations such as nursing, medical technology, or dietetics (the science of planning proper diets). You might also supervise people who work in your specialized field. You might be employed in a clinic, school, hospital, health agency, or industrial company.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this field require you to (1) secure the necessary professional and technical knowledge in the particular field; (2) develop good teaching methods; (3) use teaching, advising, supervising, and demonstrating effectively to communicate knowledge and skills to students in training; and (4) make and carry out plans for training and supervising. You should, of course, be interested in the health and welfare of others and enjoy working with people.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- good health
- interest in helping people
- skill in explaining things to others
- experience as a volunteer worker in a hospital or nursing home

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

To teach or supervise in one of the allied health fields, you need to meet all the requirements of and be experienced in the particular area you plan to supervise or teach, such as nursing or dietetics. Courses in education or methods of supervising might also be required before you can work in one of these fields.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

4 Directing, controlling, and planning an entire activity or activities of others.
5 Dealing with people in actual job duties beyond giving and receiving instructions.
7 Influencing people's opinions, attitudes, or judgments about ideas or things.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

4 Activities which involve direct personal contact, to help people or deal with them for other purposes.
6 Activities concerned with people and the communication of ideas.
7 Activities of a scientific and technical nature.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

7 Over 2 years up to and including 4 years.
8 Over 4 years up to and including 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	▨
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.				▨	
N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.			▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **5**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **L 4 5 6**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.128**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

92	Nursing, X-Ray, and Related Services
86	Health Physics
6	Administration
10	Managerial Work
42	Vocational Education
44	High School, College, University, and Related Education

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **333**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

41

Data-High
People-High
Things-Low

Industrial Training

Industrial training means to teach others to use specialized equipment, procedures, or processes related to their work. Examples of workers in this group are Systems Engineer, Police-Academy Instructor, Safety Engineer, and Navigation Instructor.

WORK PERFORMED – What would you do as a worker in this field?

In this area of work you would provide special training in the proper use or function of machines and equipment, such as looms and scales, or of systems, such as data processing. You might also teach special procedures, processes, or methods such as those used in safety, protection, or navigation. The people you train might include customers, new employees, or employees of long standing.

WORKER REQUIREMENTS – What qualifications would you need?

Work in this field requires you to (1) gain necessary background knowledge; (2) work easily and accurately with your hands; (3) coordinate the movement of your eyes, hands, and feet (make them work together) as your job requires; (4) recognize differences in shapes and sizes; (5) get ideas and instructions across to others, and (6) organize facts well enough to answer questions and plan programs of instruction.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- being good at explaining things to others
- work experience in the area to be taught
- working as a teacher's assistant
- working as a craft instructor or little league coach

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

To begin work in this field, you would need considerable work experience in a job related to the area of instruction. Usually employers fill their training positions with workers who are good at their work, at explaining things to others, and at solving problems that come up in their work.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

1 Performing a variety of duties which may often change.
4 Directing, controlling, and planning an entire activity or activities of others.
5 Dealing with people in actual job duties beyond giving and receiving instructions.
9 Rating information by using personal judgment.
0 Rating information using standards that can be measured or checked.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

2 Activities involving business contact with people.
5 Activities which bring recognition or appreciation by others.
6 Activities concerned with people and the communication of ideas.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

6 Over 1 year up to and including 2 years.
7 Over 2 years up to and including 4 years.
8 Over 4 years up to and including 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.			▨	▨	
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.			▨	▨	
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.				▨	
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.		▨	▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **3 4 5**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **S L M 2 4 5 6**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.128 .228**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

42 Vocational Education
48 Training Services

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **335**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

Vocational Education

42

Data-High
People-High
Things-Low

Vocational means related to a skill or trade which is practiced as a career. Vocational education is the teaching of vocational subject matter and skills. Examples of workers in this group are County-Agricultural Agent, Home Economist, County Home-Demonstration Agent, and Vocational Education Instructor.

WORK PERFORMED – What would you do as a worker in this field?

In this job group, you would teach, show, and give advice to others concerning the most effective use of methods and skills in such vocational areas as agriculture, home economics, wholesale and retail sales and service, auto mechanics, machine trades, or carpentry. Your work activities might occur in a school, industrial plant, business establishment, or private home.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this field require that you (1) gain the necessary background knowledge and skills of a subject area and of teaching methods, (2) explain and communicate ideas to others, (3) organize facts well enough to answer questions and plan programs of instruction, and (4) pay close attention to details.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- success in vocational courses
- ability to explain things to others
- hobbies such as cooking, sewing, gardening, and craft work
- experience in selling
- active participation in vocationally related clubs such as Future Farmers of America, Future Homemakers of America, Future Teachers of America, and Future Business Leaders of America.

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

If you want to teach in an area of vocational education at the high school level, you must meet education and work experience requirements set by the state. To get a teaching certificate in most states, you need at least four years of college, with courses in education and practice teaching, resulting in a bachelor's degree. However, some states allow people skilled in some trades or crafts to teach while completing the required college training. To teach in most areas of vocational education you need special skills and work experience, and in some areas advanced training is required. For example, a bachelor's degree is the least amount of education that is accepted for entry-level jobs in home economics. The more demanding and responsible jobs in that area require a graduate degree (degree gained after bachelor's degree as a result of additional education).

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

4 Directing, controlling, and planning an entire activity or activities of others.
5 Dealing with people in actual job duties beyond giving and receiving instructions.
7 Influencing people's opinions, attitudes, or judgments about ideas or things.
9 Rating information by using personal judgment.
0 Rating information using standards that can be measured or checked.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

4 Activities which involve direct personal contact, to help people or deal with them for other purposes.
5 Activities which bring recognition or appreciation by others.
6 Activities concerned with people and the communication of ideas.
7 Activities of a scientific and technical nature.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

6 Over 1 year up to and including 2 years.
7 Over 2 years up to and including 4 years.
8 Over 4 years up to and including 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – **INTELLIGENCE**: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	▨
V – **VERBAL**: ability to understand meanings of words and ideas, and to present information effectively.				▨	▨

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 4 5

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: L M 4 5 6

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .128 .228

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

44 High School, College, University, and Related Education

45 Kindergarten, Elementary School, and Related Education

41 Industrial Training

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **337**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

43

Data-High
People-Average
Things-Low

Flight and Related Training

Flight training means teaching others the techniques of flying airplanes and of using the instruments related to flying. Examples of workers in this group are Flying Instructor, Pilot Instructor, Supervising Airplane Pilot, and Check Pilot.

WORK PERFORMED – What would you do as a worker in this field?

As a worker in this field you would be involved in training airplane pilots. Your work would include classroom teaching of the basic techniques of flying, actual flight training in an airplane, instruction in the use of various flight-related instruments, and giving oral and written tests as well as flight tests. Depending on your particular job, you might also train new or experienced pilots concerning the equipment and operating policies of a particular commercial airline, or make in-flight tests of the equipment used by various airlines. You would probably write reports on the results of testing pilots and equipment.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this field require you to (1) gain a thorough knowledge of flying, including extensive experience in piloting an airplane; (2) be able to communicate your ideas and instructions clearly and accurately to others; (3) organize facts well enough to answer questions and plan programs of instruction; (4) be able to coordinate the movement of your eyes, hands, and feet (make them work together) as your job requires; and (5) be able to recognize differences in shapes and sizes.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- flying experience
- building model airplanes that fly
- ability to explain things to others
- reading aviation (flying) magazines
- being a member of a model airplane or junior fliers club

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

You need a great deal of flying experience as a background in order to get into this field. Training in specialized teaching methods is very helpful. Some jobs in this field require that you have a multi-engine (more than one engine) pilot license, issued by the Federal Aviation Agency (FAA).

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

1 Performing a variety of duties which may often change.
4 Directing, controlling, and planning an entire activity or activities of others.
5 Dealing with people in actual job duties beyond giving and receiving instructions.
8 Working well under pressure when faced with critical or unexpected situations or when taking necessary risks.
9 Rating information by using personal judgment.
0 Rating information using standards that can be measured or checked.
Y Working within precise limits or standards of accuracy.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

4 Activities which involve direct personal contact, to help people or deal with them for other purposes.
5 Activities which bring recognition or appreciation by others.
6 Activities concerned with people and the communication of ideas.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

3 Over 30 days up to and including 3 months.
6 Over 1 year up to and including 2 years.
8 Over 4 years up to and including 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.			▨	▨	
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.			▨	▨	
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.			▨	▨	
E – EYE-HAND-FOOT COORDINATION: ability to coordinate the movements of the hands and feet according to visual signals and directions.			▨	▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **3 5 6**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: L 4 5 6

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .168 .228 .268

RELATED GROUPS OF JOBS – Other groups of jobs related to Decorating and Art Work described in this publication are

110	Transportation Service Work
83	Driving-Operating
77	Transporting and Test Driving

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **339**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

44

Data-High
People-High
Things-Low

High School, College, University, and Related Education

High school, college, university, and related education means teaching courses in high schools, colleges, universities, or in such specialized surroundings as a correspondence school or a school for the blind. Examples of workers in this group are College or University Faculty Member, Secondary School (High School) Teacher, Adult Education Teacher, and Teacher of the Blind.

WORK PERFORMED – What would you do as a worker in this field?

In this field, you would teach at the high school, college, or graduate school level. (Graduate school is the level which follows the regular four-year college program.) Depending on your interests and training, you might teach such subjects as history, English, mathematics, economics, biology, psychology, or foreign languages. These subjects would usually be part of a regular school or college curriculum (program of courses), and you would probably serve as a member of the faculty (teaching staff). Your work would involve teaching groups or individuals on a full time or part-time basis.

Teaching on any of these levels involves preparing outlines of lessons, using audio-visual aids, lecturing, assigning and checking homework, and testing to determine students' progress. A certain amount of record keeping is also required, such as taking attendance, recording grades, and filling out grade reports. Higher levels of teaching may include supervising (directing) research work.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this group require that you (1) gain the necessary knowledge of your subject area and teaching methods, (2) be able to organize facts in order to answer questions and plan what you will teach, (3) communicate your ideas to others, and (4) pay attention to details.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- ability to explain things to others
- good grades in high school and college
- active participation in school activities
- being an officer or member of FTA (Future Teachers of America) or similar group
- experience as school office worker or teacher's helper

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

To teach in high school you need to be certified (licensed) by the state in which you work. You need at least a bachelor's degree (four-year) to be certified to teach, and many states require additional education courses, including practice teaching. Most college or university teaching positions require at least a master's degree (the degree following the bachelor's) and, usually, a doctor's degree (the degree following the master's.) Teaching assistantships are often available at the university level. These provide an opportunity to teach or assist in teaching a few classes at the same time you are studying for your master's or doctor's degree.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

4 Directing, controlling, and planning an entire activity or activities of others.
5 Dealing with people in actual job duties beyond giving and receiving instructions.
7 Influencing people's opinions, attitudes, or judgments about ideas or things.
9 Rating information by using personal judgment.
0 Rating information using standards that can be measured or checked.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

4 Activities which involve direct personal contact, to help people or deal with them for other purposes.
5 Activities which bring recognition or appreciation by others.
6 Activities concerned with people and the communication of ideas.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

7 Over 2 years up to and including 4 years.
8 Over 4 years up to and including 10 years.
9 Over 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	▨
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.				▨	▨
N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.			▨	▨	▨
Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.		▨	▨	▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **4 5 6**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **S L 4 5**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.228**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

32 Guidance and Counseling
45 Kindergarten, Elementary School, and Related Education
47 Physical Education
42 Vocational Education
1 Instructive Work, Fine Arts, Theater, Music, and Related Fields

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **341**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

45

Data-High
People-High
Things-Low

Kindergarten, Elementary School, and Related Education

Kindergarten, elementary school, and related education means teaching subjects which help children learn to take care of themselves, get along with others, and learn the basic skills (such as reading and arithmetic). Examples of workers in this group are Elementary Teacher, Kindergarten Teacher, and Teacher of Handicapped Children.

WORK PERFORMED – What would you do as a worker in this field?

In this field you would teach in either a public or private nursery school, kindergarten, or elementary school, or in a private home or other setting. As a **kindergarten teacher**, you would teach children simple skills, such as singing songs, playing games, getting along with others, and keeping clean. As a **elementary teacher**, you would also teach subjects such as English, arithmetic, or reading. An important part of your job would be to find out the learning abilities of your students and then decide on the best teaching methods.

WORKER REQUIREMENTS – What qualifications would you need?

To do well in this field, you need to (1) gain the necessary background knowledge of your subjects as well as appropriate teaching methods, (2) be able to communicate ideas and instructions to children, (3) be able to organize facts in order to answer questions and plan what you will teach, (4) be able to solve problems in arithmetic, and (5) be accurate in handling the many details involved in teaching.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- enjoyment in working with children
- babysitting or playground experience
- ability to explain things to others, expecially children
- good grades in high school and college
- being a member of FTA (Future Teachers of America)

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

You need to be certified (licensed) by the state in which you would be working in order to teach in kindergarten or elementary school. Most states require four years of college training, including practice teaching; however, a few states require only two years of college to be certified and a few require a master's degee.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

4 Directing, controlling, and planning an entire activity or activities of others.
5 Dealing with people in actual job duties beyond giving and receiving instructions.
9 Rating information by using personal judgment.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

4 Activities which involve direct personal contact, to help people or deal with them for other purposes.
5 Activities which bring recognition or appreciation by others.
6 Activities concerned with people and the communication of ideas.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

6 Over 1 year up to and including 2 years.
7 Over 2 years up to and including 4 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.				▨	
N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.		▨	▨	▨	
Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.		▨	▨	▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **5**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **L 4 5**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.228**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

32	Guidance and Counseling
44	High School, College, University, and Related Education
93	Child and Adult Care

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **343**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

46

Data-High
People-High
Things-Low

Miscellaneous Instructive Work

Miscellaneous instructive work means to teach a wide variety of recreational skills or similar activities. Examples of workers in this group are Auto Driving Instructor, Camp Counselor, Baton Twirling Instructor, Bridge Instructor, Recreation Leader, and Fishing Instructor.

WORK PERFORMED – What would you do as a worker in this field?

In this field you would help people gain knowledge and skills which are useful as a hobby or for recreation. Depending upon your particular job, you would teach others such skills as how to play cards or other games, how to twirl a baton, how to drive an automobile, or how to fish. Your students might range in age from quite young to quite old.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this field require you to (1) gain the necessary skill and experience as well as to learn teaching methods; (2) be able to get along well with people and communicate your ideas to them; (3) be able to organize information and plan the best methods for teaching the knowledge and skill needed; and (4) coordinate the movement of your eyes, hands, and feet (make them work together) the way your job requires.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- being good at certain sports or hobbies
- reading sport and hobby magazines
- work experience as a camp or playground instructor
- coaching a little league team
- ability to explain things to others

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

To work in this area you need a good background in a special hobby, craft, or recreational activity. As people have more leisure (free) time, the need for teachers of recreational skills is increasing. Depending upon the national economy, opportunities in this field are likely to increase even more as individuals search for something different and productive to do with their free time.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

1 Performing a variety of duties which may often change.
4 Directing, controlling, and planning an entire activity or activities of others.
5 Dealing with people in actual job duties beyond giving and receiving instructions.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

2 Activities involving business contact with people.

4 Activities which involve direct personal contact, to help people or deal with them for other purposes.

6 Activities concerned with people and the communication of ideas.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

6 Over 1 year up to and including 2 years.
7 Over 2 years up to and including 4 years.
8 Over 4 years up to and including 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.			▨	▨	
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.			▨	▨	
E – EYE-HAND-FOOT COORDINATION: ability to coordinate the movements of the hands and feet according to visual signals and directions.			▨	▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 3 4 5

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: S L M 2 3 4 5 6

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .228

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

47	Physical Education
45	Kindergarten, Elementary School, and Related Education
66	Rhythmics
69	Miscellaneous Amusement and Recreation Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **345**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

Physical Education

47

Data-High
People-High
Things-Low

Physical education means to instruct others in the principles of physical development, sports, and physical exercise programs. Examples of workers in this group are School or College Athletic Coach, Athletic Trainer, Bowling Instructor, Coach of Professional Athletes, Golf Professional, Physical Education Instructor, and Skiing, Ice Skating, Judo, Riding, and Swimming Instructor.

WORK PERFORMED – What would you do as a worker in this field?

In this kind of work you would instruct others in the general principles of physical development, and in methods for developing and using the skills of certain sports. You might work in a school, college, university, or professional sports program or in a noneducational setting such as a camp or playground. You would determine the physical condition and abilities of each individual in your program and use this knowledge to plan a method of training that would bring each one up to his highest possible level of development. As a coach, you would usually be responsible for a team or squad. You would work to develop team spirit and cooperation.

WORKER REQUIREMENTS – What qualifications would you need?

To do well in this field, you need to (1) complete the required educational courses, including those dealing with physical education, recreation, or athletics; (2) be able to plan, set-up, and/or referee athletic games and contests; (3) get along easily with different kinds of people; (4) be able to use your hands and fingers quickly and accurately; (5) coordinate the movements of your eyes, hands, and feet (make them work together) as your job requires; (6) be able to get your ideas and instructions across to students and players; and (7) keep in good physical condition.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- being physically fit
- interest in reading about sports
- playing successfully on sports teams in high school or college
- lifeguard experience
- experience in coaching or assisting a little league team or other athletic group

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

To teach physical education in a high school, you need to be certified (licensed) by the state in which you work. This involves getting a bachelor's (four-year) degree from a college, and usually requires courses in education, including practice teaching. To teach in a college or university, you need at least a master's degree (beyond bachelor's).

To become a coach of high school or college sports, you usually need playing experience, or experience as an assistant coach in a particular sport. Coaching jobs are available not only in schools, but also in amateur (nonprofessional) and professional sports. Instructors of riding, swimming, judo, golf, and similar sports need both knowledge and experience as a background. Usually, they are employed by clubs or special agencies such as riding academies, ski resorts, bowling alleys, country clubs, or YMCA-YWCA organizations.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

4 Directing, controlling, and planning an entire activity or activities of others.
5 Dealing with people in actual job duties beyond giving and receiving instructions.
9 Rating information by using personal judgment.
0 Rating information using standards that can be measured or checked.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

4 Activities which involve direct personal contact, to help people or deal with them for other purposes.
5 Activities whcih bring recognition or appreciation by others.
6 Activities concerned with people and the communication of ideas.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

7 Over 2 years up to and including 4 years.
8 Over 4 years up to and including 10 years.

APTITUDES — The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G — INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	
V — VERBAL: ability to understand meanings of words and ideas, and to present information effectively.				▨	
E — EYE-HAND-FOOT COORDINATION: ability to coordinate the movements of the hands and feet according to visual signals and directions.			▨	▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) — The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **4 5**

PHYSICAL DEMANDS — The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **L M H 2 3 4 5 6**

DATA-PEOPLE-THINGS (D-P-T) — The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.228**

RELATED GROUPS OF JOBS — Other Worker Trait Groups related to this Worker Trait Group include:

66 Rhythmics
44 High School, College, University, and Related Education
45 Kindergarten, Elementary School, and Related Education
68 Amusement and Entertainment Work, Physical

ADDITIONAL INFORMATION — You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **347**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

48

Data-High
People-High
Things-Low

Training Services

Training services means training workers and checking to see how well they perform on the job. Examples of workers in this group are Training Representative and Training Supervisor.

WORK PERFORMED -- What would you do as a worker in this field?

As a worker in this field you would introduce both new and regular workers to the general requirements and standards of their jobs, and would also give them specific training. Your work might involve the use of lectures, visual aids, and demonstrations, as well as tests and observation to make certain that the training is successful. You would continue to observe the performance of the workers and to seek ways to help them do their jobs better.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this area require you to (1) be able to gain the necessary background of knowledge and experience to teach the skills in question, (2) communicate your ideas and instructions to others, and (3) organize facts well enough to answer questions and to plan programs of instruction.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- ability to use words meaningfully to express ideas
- success in explaining things to others
- working as a teacher's aide (helper) or laboratory assistant

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

The best way to get into this field is to have a background in personnel relations (formal employer-employee relationships). Most employers prefer that you have a college education with either a bachelor's or master's degree in personnel administration (management) or some related field.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

1 Performing a variety of duties which may often change.
4 Directing, controlling, and planning an entire activity or activities of others.
5 Dealing with people in actual job duties beyond giving and receiving instructions.
9 Rating information by using personal judgment.
0 Rating information using standards that can be measured or checked.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

2 Activities involving business contact with people.
5 Activities which bring recognition or appreciation by others.
6 Activities concerned with people and the communication of ideas.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

6 Over 1 year up to and including 2 years.
7 Over 2 years up to and including 4 years.
8 Over 4 years up to and including 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.					▨
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.					▨
Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.		▨	▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **5**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **S L M 2 4 5 6**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.228**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

- 8 Business Training
- 11 Consultative and Business Services
- 42 Vocational Education

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in **Volume II, Dictionary of Occupational Titles** (DOT), Third Edition, page **349**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

49

Data-High
People-High
Things-Low

Animal Training

Animal training means teaching animals to perform, obey, and work at given commands. Examples of workers in this group are Marine-Mammal Trainer, Horse Trainer, Dog Trainer, and Wild-Animal Trainer.

WORK PERFORMED – What would you do as a worker in this field?

As an animal trainer, you might teach animals to perform for entertainment, to behave, or to do some kind of work. As a horse trainer, you might prepare horses to race or to obey commands for circus and other exhibition acts. Training dogs for entertainment acts, leading the blind, or guarding property requires you to know how well different breeds of dogs react to commands. As a wild animal trainer, you would tame such animals as lions, tigers, and elephants to the degree that they would obey commands in performing an entertainment act. All animal training jobs involve a thorough knowledge of the specific animals you train and using signals to communicate your instructions to them.

WORKER REQUIREMENTS – What qualifications would you need?

In this job you need to (1) like animals; (2) understand how animals usually behave and react; (3) coordinate the movement of your eyes, hands, fingers, and feet (make them work together) as your job requires; (4) keep physically fit and active; and (5) like outdoor work.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- fondness for animals
- collecting books about animals
- reading magazines about the outdoors
- membership in a 4-H club
- having and training a pet

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

How you would enter this field depends upon the kind of animal involved. Trainers of marine (water) animals must usually complete courses in comparative psychology (comparing animal behavior to human behavior). Wild-animal trainers often learn their trade while working around animals in a circus. Horse trainers often get their start by working at racing stables. Dog trainers may begin by helping in kennels and moving into training if they find that they have the interest and ability.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

4 Directing, controlling, and planning an entire activity or activities of others.
5 Dealing with people in actual job duties beyond giving and receiving instructions.
8 Working well under pressure when faced with critical or unexpected situations or when taking necessary risks.
9 Rating information by using personal judgment.
0 Rating information using standards that can be measured or checked.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

3 Activities of a routine, definite, organized nature
4 Activities which involve direct personal contact, to help people or deal with them for other purposes
6 Activities concerned with people and the communication of ideas

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

5 Over 6 months up to and including 1 year.
6 Over 1 year up to and including 2 years.
7 Over 2 years up to and including 4 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.			▨	▨	
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.		▨	▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **4 5**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **L M 2 3 4 5 6**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.228 .328**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include: tion are

107	Animal Care
72	Cropping, Animal Farming, Gardening, and Related Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **351**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

50

Data-Low
People-Average
Things-Low

Signaling and Related Work

Signaling means to use signals to give directions or warnings. Examples of workers in this group are School-Crossing Guard, Construction Flagman, Signalman, Crossing Watchman, Hatch Tender, Yard Fireman, and Whistle Punk.

WORK PERFORMED – What would you do as a worker in this field?

In this field you would give warning or directing signals to pedestrians (people traveling on foot) or to the drivers or operators of vehicles or materials-handling machines and equipment, by using hand and arm movements or signs, lights, whistles, bells, or other devices. Your job might involve stopping and directing traffic at school crosswalks so that children might safely cross the streets, or stopping and directing the flow of traffic around a construction area. You might also pass messages to other workers by means of signals.

WORKER REQUIREMENTS – What qualifications would you need?

To do well in this field, you need to (1) follow instructions exactly, (2) feel responsible for the safety of people and property, (3) be alert at all times, and (4) be able to remain standing for long periods of time.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- being in good health
- taking part in outdoor activities
- being able to do the same kind of work over and over without getting bored

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

You do not usually need much training to get a job in this field. Employers look for people on whom they can depend to do routine work. New employees are usually given demonstrations or short periods of on-the-job training to help them learn the job.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

2 Repeating activities or tasks of short duration according to a required routine procedure or sequence.
3 Doing things only under specific instructions, allowing little or no room for independent action or judgment in working out job problems.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

1 Activities dealing with things and objects
3 Activities of a routine, definite, organized nature

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

2 **Anything beyond short demonstration up to and including 30 days.**

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
C – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.		▨			
M – MANUAL DEXTERITY: ability to work easily and skillfully with the hands.		▨			

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **2**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **L 4**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.868**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

105	Miscellaneous Personal Service Work (Food Serving, Portering, Valeting, and Related Activities)
104	Accommodating Work
79	Protecting and Related Work
106	Ushering, Messenger Service, and Related Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles (DOT), Third Edition**, page **354**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

51

Data-Low
People- Average
Things-Low

Feeding-Offbearing

Feeding means to put objects into a machine for processing. Offbearing means to take objects from a machine. Examples of workers in this group are Oven Loader, Cloth Feeder, Conveyor Loader, Dry-Cleaner Helper, Scrap Sorter, and Pressman Helper.

WORK PERFORMED – What would you do as a worker in this field?

As a worker in this group, you would insert, throw, dump, or place objects into – or take them out of – machines. The machines might be automatic, or they might be operated by another worker. Work assignments would usually be made by a supervisor who gives simple instructions and suggestions.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this field require you to (1) follow instructions; (2) coordinate the movement of your eyes, hands, and feet (make them work together) as your job requires; and (3) use your hands and fingers rapidly and accurately. This type of work usually requires good health, physical strength, and the ability to stand physical strain.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- ability to do the same kind of work day after day without becoming bored
- good physical condition
- liking (or being willing to do) physical work

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Usually you do not need any training to get into this work. Within a month of being hired and shown how to do the work, you would be expected to perform your job at the normal level of production. Since most people who have the physical ability are able to do this kind of work, employers often pay as much attention to a person's record of honesty, dependability, and willingness to work as they do to his or her skills. These traits would also be important if you are being considered for promotion (being advanced) or for training for a more complicated job.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

2 Repeating activities or tasks of short duration according to a required routine procedure or sequence.
3 Doing things only under specific instructions, allowing little or no room for independent action or judgment in working out job problems.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

1 Activities dealing with things and objects
3 Activities of a routine, definite, organized nature

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

1 Short duration only.
2 Anything beyond short demonstration up to and including 30 days.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
K – MOTOR COORDINATION: ability to coordinate the use of eyes and hands or fingers rapidly and accurately to perform a task.		▨			
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.		▨	▨		
M – MANUAL DEXTERITY: ability to work easily and skillfully with the hands.		▨	▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 1 2

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: S L M H 4 3 6

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): 886

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

52 Handling
83 Driving-Operating
39 Manipulating
84 Tending

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **356**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

52

Data-Low
People-Low
Things-Average

Handling

Handling means to move objects around, usually by hand, in a routine manner. Examples of workers in this group are Farm Hand, Automotive Assembler, Construction Worker, Longshoreman, and Furniture Mover.

WORK PERFORMED – What would you do as a worker in this field?

In this field of work, you would carry or move things such as furniture, bales of hay, automotive parts, packages, or building materials. You would usually perform routine tasks which do not require you to use machines, make difficult decisions, or follow strict rules or standards.

WORKER REQUIREMENTS – What qualifications would you need?

To be good at handling, you need to (1) keep in good physical condition, (2) be willing to do the same kind of work over and over, (3) be able to use your hands and fingers easily and accurately, (4) be physically strong and able to stand physical strain, (5) coordinate the movement of your eyes and hands (make them work together) as your job requires, (6) recognize differences in shapes and sizes, and (7) follow instructions.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- prefer to do outside or factory work
- good physical condition
- ability to use your physical strength for long periods
- enjoyment in performing sports or activities that require physical strength

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

You need no previous training to get into this type of work as it is usually easy to understand. On the job, you would be shown what to do. Since the work involves physical activity, you need to have the strength required, which might range from light to very heavy lifting and carrying. Because this is the type of work many people can do, you have a better chance of getting a job if you have a record of honesty, dependability, and willingness to work. These traits will also help you to be recommended for promotion (being advanced) or for training for more complicated work.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

2 Repeating activities or tasks of short duration according to a required routine procedure or sequence.
3 Doing things only under specific instructions, allowing little or no room for independent action or judgment in working out job problems.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

1 Activities dealing with things and objects.
3 Activities of a routine, definite, organized nature.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

1 Short duration only.
2 Anything beyond short demonstration up to and including 30 days.
3 Over 30 days up to and including 3 months.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.		▨	▨		
K – MOTOR COORDINATION: ability to coordinate the use of eyes and hands or fingers rapidly and accurately to perform a task.		▨	▨		
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.		▨	▨		
M – MANUAL DEXTERITY: ability to work easily and skillfully with the hands.		▨	▨	▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **1 2**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **L M H V 4**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.887**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

39	Manipulating
84	Tending
51	Feeding-Offbearing

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **360**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

53

Data-High
People-Low
Things-High

Engineering Research and Design

Engineering is the practical application of scientific knowledge to the design, development, and operation of products such as machinery, roads, bridges, buildings, or lighting and communications systems. Engineering research and design means to gather and use scientific information to solve engineering problems so that scientific knowledge can be used for practical purposes. Examples of workers in this field are Architects and Electrical, Civil, Ceramic, Chemical, Mining, and Nuclear Engineers.

WORK PERFORMED – What would you do as a worker in this field?

In this field of work, you would apply your knowledge of the working properties of metals, gases, woods, and other materials; the sources and uses of power; and the principles of physical force, to design and produce products useful to man. Things you might do include: (1) analyzing (examining carefully) and experimenting with materials and methods; (2) thinking up and designing new structures, machines, tools, instruments, or other devices; (3) planning and developing methods and systems for cooling, heating, lighting, communicating, transporting, etc.; (4) developing new products or new methods of doing things; (5) performing tests on materials or parts to determine their function, makeup, or structure; and (6) preparing reports about the findings of research and experiments.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this field require you to (1) learn and use basic engineering principles and method, (2) use your knowledge and imagination to create new things or new ways of doing things, (3) be able to see details in drawings and designs and to recognize fine differences in sizes and shapes, (4) think logically (in a clear and organized manner), (5) determine ways to get work done correctly and on time, and (6) understand and solve mathematical problems.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- good grades in mathematics and language arts courses
- high scores on mathematics and language aptitude tests
- skill in mechanical or freehand drawing
- enjoyment of reading scientific or technical literature
- ability to express yourself clearly in speaking or writing
- participation (taking part) in a science fair or exhibit

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Most employers require at least a college (four-year bachelor's) degree in engineering for beginning workers in this field. However, a draftsman or engineering technician with a great deal of experience and some college-level training might find such employment.

Many employers require a graduate degree (which takes a fifth or sixth year of college) or several years of engineering experience as a background for research work. A strong background in mathematics and the physical sciences is very important.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

4 Directing, controlling, and planning an entire activity or activities of others.
0 Rating information using standards that can be measured or checked.
Y Working within precise limits or standards of accuracy.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

7 Activities of a scientific and technical nature.
8 Activities of an unusual, indefinite nature which require creative imagination.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

7 Over 2 years up to and including 4 years.
8 Over 4 years up to and including 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.					▨
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.				▨	▨
N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.				▨	▨
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.				▨	▨
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.			▨	▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **6**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **S L 4 6**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.081**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

54 Sales Engineering
55 Engineering, Scientific, and Technical Coordination
58 Engineering and Related Work
57 Technical Work, Engineering and Related Fields
59 Industrial Engineering and Related Work
56 Drafting and Related Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **371**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

54

Data-High
People-Average
Things-High

Sales Engineering

Sales engineering means to put to use a broad and detailed knowledge of engineering in order to sell products or services. Examples of workers in this group are Industrial-Power Engineer, Special-Service Representative, Heating Engineer, and Oil-Well Services Sales Engineer.

WORK PERFORMED – What would you do as a worker in this field?

In this field, you would be both salesman and engineer. You would demonstrate, sell and help install (put in place) engineering products or services. You would advise and assist customers in buying such things as industrial machines or air-conditioning systems. You would recommend equipment or process changes or adaptations to fit the needs of the individual customer. Finally, you would supervise the installation of your products. You would need to work closely with your customers to solve technical problems, work out costs, and persuade them that what you are selling is better for their purposes than what someone else has to offer.

WORKER REQUIREMENTS – What qualifications would you need?

To do well in this field you need to (1) have knowledge and skill in the methods of engineering and marketing (sales), (2) be able to understand and solve complicated mathematical problems, (3) be able to see and imagine differences in shapes and sizes, (4) talk easily, and (5) persuade people to buy your products or services.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- high grades in mathematics, science, and language arts courses
- using language skillfully in speaking
- being active in debate or public speaking
- experience in selling

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Because of the different talents needed in this type of work, most employers require a four-year (bachelor's) degree in some branch of engineering plus course work in business administration and marketing (selling). Sometimes an employer will hire a person in this field without a degree if he has had experience in technical work and appears to be persuasive. Most employers offer formal training programs or on-the-job training in which a beginner is put to work with an experienced employee.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

5 Dealing with people in actual job duties beyond giving and receiving instructions.
7 Influencing people's opinions, attitudes, or judgments about ideas or things.
0 Rating information using standards that can be measured or checked.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

2 Activities involving business contact with people.
6 Activities concerned with people and the commmunication of ideas.
7 Activities of a scientific and technical nature.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

7 Over 2 years up to and including 4 years.
8 Over 4 years up to and including 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	▨
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.				▨	
N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.				▨	▨
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.				▨	▨
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.			▨	▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **5**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **L 5 6**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.151**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

53	Engineering Research and Design
95	Purchase and Sales Work
58	Engineering and Related Work
97	Demonstration and Sales Work
56	Drafting and Related Work
57	Technical Work, Engineering, and Related Fields
55	Engineering, Scientific, and Technical Coordination
61	Technical Writing and Related Work
59	Industrial Engineering and Related Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page 373. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

55

Data-High
People-Average
Things-Low

Engineering, Scientific, and Technical Coordination

Coordination means to get people or things to work together in harmony to produce a desired result. In this group you would be coordinating activities involved in engineering, scientific, and technical work. Examples of workers in this group are Chief Research Engineer, Quality Control Director, and Chemical-Laboratory Chief.

WORK PERFORMED – What would you do as a worker in this field?

Your work in this field would involve the planning and coordination of engineering, scientific, or technical programs and activities which usually occur in a scientific or industrial setting, such as a laboratory or factory. You would plan and direct programs and projects, including the establishment of policies (work rules) and standards (requirements). You would also monitor (watch, observe, and check) the activities of the workers to make sure they are performing according to required policies and standards.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this field require you to (1) understand and use engineering, scientific, or technical rules and methods; (2) plan, set up, and carry out programs and policies; (3) speak well in order to communicate with other workers; and (4) understand and solve mathematical problems.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- successful background in engineering, scientific, or technical work
- ability to express ideas and communicate with others
- scientific or technical hobbies
- enjoyment of mathematics, science, and language arts courses

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

For a job in this field, you need four or five years of college resulting in a college degree (bachelor's) in an engineering, scientific, or technical area. Some employers require a graduate degree (beyond the bachelor's). You would enter this field after performing successfully in related work, gaining needed work experience, and showing that you have the ability to plan and set up complicated work activities and to deal effectively with people.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

1 Performing a variety of duties which may often change.
4 Directing, controlling, and planning an entire activity or activities of others.
5 Dealing with people in actual job duties beyond giving and receiving instructions.
9 Rating information by using personal judgment.
0 Rating information using standards that can be measured or checked.
Y Working within precise limits or standards of accuracy.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

5 Activities which bring recognition or appreciation by others.
6 Activities concerned with people and the communication of ideas.
7 Activities of a scientific and technical nature.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

7 Over 2 years up to and including 4 years.
8 Over 4 years up to and including 10 years.
9 Over 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	▨
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.				▨	▨
N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.				▨	▨

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **5 6**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **S L M H 3 4 5 6**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.168**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

57	Technical Work, Engineering and Related Fields
58	Engineering and Related Work
59	Industrial Engineering and Related Work
53	Engineering Research and Design
6	Administration
88	Mathematics, Physical Sciences, and Related Research

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **375**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

56
Data-High
People-Low
Things-High

Drafting and Related Work

Drafting means to make accurate finished drawings from rough sketches, written details, and measurements, models, or verbal descriptions. Examples of workers in this group are Auto-Body Designer; Technical Illustrator; and Architectural, Aeronautical, Mechanical, Structural, and Landscape Draftsman.

WORK PERFORMED – What would you do as a worker in this field?

In this field, you would use rough drawings, measurements, and figures of engineers, architects, and designers to make complete and accurate working plans and drawings. These plans may be used for building or manufacturing such things as buildings, roads, airplanes, automobiles, maps, ships, machines, and bridges. You would use drafting tools, such as ruling and lettering pens, triangles, and T-squares as well as a knowledge of engineering methods, mathematics, building materials, and the physical sciences. You might develop tables or charts to explain the information shown in your drawings or blueprints.

WORKER REQUIREMENTS – What qualifications would you need?

In this field, you need to (1) understand and use the knowledge and methods of drafting, engineering, mathematics, and the physical sciences; (2) see and imagine differences in shapes and sizes and illustrate (show) these in drawings; (3) use your fingers quickly and accurately; and (4) perform detailed work.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- drawing skills
- success in mechanical drawing and shop courses
- enjoyment of working around machines or watching new construction work
- working successfully with detailed technical information

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

This field of work usually requires you to have at least a vocational (trade) or a technical high school education. Many employers require additional technical training, which might be obtained from a technical institute, a junior college, an extension (off-campus) division of a university, a correspondence school, or a college offering special two-year programs in drafting. There are also three- or four-year apprenticeship programs available and on-the-job training combined with part-time schooling. The courses you would take include mathematics, the physical sciences, mechanical drawing, and standard methods of lettering and tracing.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

0 Rating information using standards that can be measured or checked.

Y Working within precise limits or standards of accuracy.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

1 Activities dealing with things and objects.

7 Activities of a scientific and technical nature.

9 Activities which are nonsocial and involve the use of machines, processes, or methods.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

7 Over 2 years up to and including 4 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – **INTELLIGENCE**: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	
N – **NUMERICAL**: ability to perform arithmetical operations quickly and accurately.				▨	
S – **SPATIAL**: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.				▨	▨
P – **FORM PERCEPTION**: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.				▨	
Q – **CLERICAL PERCEPTION**: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.			▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **4 5**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **S**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.181 .281**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

4	Art Work
58	Engineering and Related Work
53	Engineering Research and Design
57	Technical Work, Engineering and Related Fields

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **377**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

Technical Work, Engineering and Related Fields

57

Data-High
People-Low
Things-High

Technical work in engineering and related fields means to use a special or practical working knowledge of mechanical and scientific principles to assist (help) an engineer or to perform specialized technical duties. Examples of workers in this group are Electrical Technician, Electronic Technician, Sound-Effects Man, Mechanical-Engineering Technician, and Quality-Control Technician.

WORK PERFORMED — What would you do as a worker in this field?

This work involves using engineering and technical knowledge to assist an engineer in his work. As a technical worker, you would gather information, draw plans, and assist in the development of various products such as machines, systems, and materials. You would use your knowledge to solve special problems that might arise. Making prototypes (working models) of the product under development might be part of your job. You might also help the engineer to test the prototype and determine what corrections or changes may be needed. You would write reports on the progress of the development and testing. You might work with skilled craftsmen to make a special piece of equipment for the engineer to use, and you might design and make special new parts for the product being developed.

WORKER REQUIREMENTS — What qualifications would you need?

Jobs in this field require you to (1) learn and apply basic engineering and technical rules and methods; (2) use mathematics and language easily and accurately; and (3) see fine differences in shapes, sizes, and relationships among parts in a drawing or piece of equipment.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS — What personal characteristics or experiences might help you decide if you should explore this field of work?

- success in vocational and mathematics courses in high school
- success in a scientific or technical hobby
- regular reading of engineering and technical magazines
- ability to follow detailed technical directions and instructions

TRAINING AND METHODS OF ENTRY — How can you prepare for this field of work and get started in it?

Graduation from a technical institute or the completion of a special program in junior college or in a university may be required for some jobs in this field. Another method of entry is through apprenticeship or specialized training in which you would gain the necessary knowledge of mathematics.

Qualifications Profile

TEMPERAMENTS — The different kinds of working conditions or situations workers in this group must adjust to include

0 Rating information using standards that can be measured or checked.
Y Working within precise limits or standards of accuracy.

INTERESTS — People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

7 Activities of a scientific and technical nature.
9 Activities which are nonsocial and involve the use of machines, processes, or methods.

SPECIFIC VOCATIONAL PREPARATION — Different jobs require different amounts of specific vocational training. The following statements show the range of time — depending on the specific job — necessary to develop the knowledge and skills required by this job group.

6 Over 1 year up to and including 2 years.
7 Over 2 years up to and including 4 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.			▨	▨	
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.			▨	▨	
N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.			▨	▨	
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.				▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 4 5

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: S L M 4 5 6

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .181 .281

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

73	Technical Work, Science and Related Fields
75	Materials Analysis and Related Work
56	Drafting and Related Work
58	Engineering and Related Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page 379. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

	ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY				
	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	▨
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.				▨	▨
N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.				▨	▨
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.			▨	▨	
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.				▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **6 5**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **S L 6**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.187**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

59	Industrial Engineering and Related Work
53	Engineering Research and Design
57	Technical Work, Engineering and Related Fields
55	Engineering, Scientific, and Technical Coordination
61	Technical Writing and Related Work
56	Drafting and Related Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **381**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

58

Data-High
People-Low
Things-Average

Engineering and Related Work

Engineering is the practical application of scientific knowledge to the design, development, and operation of products or processes. Examples of workers in this group are Cost-Analysis Engineer, Radio Engineer, Design Checker, Manufacturing Engineer, Mining Investigator, Marine Engineer, and Commercial Engineer.

WORK PERFORMED – What would you do as a worker in this field?

In this field you would use engineering knowledge in planning, directing, and installing projects or systems. Possible tasks include (1) suggesting changes in product design to help increase production while reducing costs, (2) operating and controlling radio and television transmitting (sending) equipment, (3) checking design drawings for accuracy, (4) planning the flow of work necessary to manufacture industrial machinery and equipment, (5) examining the structure of the earth in oil fields to determine the best location for drilling, (6) directing repair and similar work aboard ships, and (7) planning the use of network radio and television equipment to improve transmission quality. Your work would usually occur in a specific field of engineering such as civil, mechanical, or electrical.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this field require you to (1) organize and plan technical work carefully and accurately, (2) express yourself clearly in speaking and writing, (3) learn and apply specific engineering rules and methods, (4) be able to see differences in sizes and shapes, and (5) understand and use mathematics.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- good grades in mathematics courses
- enjoyment in reading engineering and technical magazines
- model making as a hobby

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Most employers require at least a college (four-year bachelor's) degree in engineering, and many are now requiring a graduate degree (one earned after the bachelor's) in engineering.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

4 Directing, controlling, and planning an entire activity or activities of others.
0 Rating information using standards that can be measured or checked.
Y Working within precise limits or standards of accuracy.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

1 Activities dealing with things and objects.
7 Activities of a scientific and technical nature.
9 Activities which are nonsocial and involve the use of machines, processes, or methods.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

7 Over 2 years up to and including 4 years.
8 Over 4 years up to and including 10 years.

59

Data-High
People-Low
Things-Low

Industrial Engineering and Related Work

Industrial engineering is the practical application of scientific knowledge and engineering methods to the construction and operation of a business or industry. Examples of workers in this group are Engineering Scheduler, Industrial-Health Engineer, Methods Engineer, Quality-Control Engineer, Production Estimator, and Traffic Technician.

WORK PERFORMED – What would you do as a worker in this field?

In this job group you would use a knowledge of industrial methods and operations to make sure that a particular company (or business, or industry) uses its machines, materials, and manpower in the best possible way. Specific tasks might include studying and making suggestions concerning (1) how time and motion in work can be reduced, (2) how workers might be encouraged to produce more, (3) how work procedures and methods can be improved, (4) how costs can be cut or controlled, (5) how working conditions can be made safer, and (6) how a plant can be designed or rearranged to help workers do more or better work.

WORKER REQUIREMENTS – What qualifications would you need?

To be successful in this field you need to (1) learn and use engineering principles and methods, (2) be able to plan and conduct difficult technical studies, (3) understand and use mathematics, (4) be able to express yourself clearly in speaking and writing, and (5) be able to see or imagine how objects might be placed or moved to get a job done more effectively.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- good grades in math and science courses
- success in college engineering courses
- interest in reading industrial magazines
- interest in working in an industrial setting

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

A college (four-year bachelor's) degree in engineering is usually required for entry into this field. An increasing number of employers require graduate (beyond the bachelor's) degrees. However, it might be possible to enter this field without a degree if you have some college-level training and a great deal of experience in an area related to industrial engineering.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

4 Directing, controlling, and planning an entire activity or activities of others.
9 Rating information by using personal judgment.
0 Rating information using standards that can be measured or checked.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

7 Activities of a scientific and technical nature.
9 Activities which are nonsocial and involve the use of machines, processes, or methods.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

7 Over 2 years up to and including 4 years.
8 Over 4 years up to and including 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	▨
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.				▨	▨
N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.				▨	▨
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.			▨	▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 5

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: S L 6

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .188 .288

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

53	Engineering Research and Design
57	Technical Work, Engineering and Related Fields
55	Engineering, Scientific, and Technical Coordination
61	Technical Writing and Related Work
56	Drafting and Related Work
58	Engineering and Related Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page 383. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

Surveying, Prospecting, and Related Work

60

Data-High
People-Low
Things-Low

Surveying means to determine the size, shape, position, and boundaries of plots of land. Prospecting means to search, explore, or examine an area for deposits of gas, oil, or minerals. Examples of workers in this group are Surveyor, Prospector, Instrument Man, Weather Observer, and Navigator.

WORK PERFORMED – What would you do as a worker in this field ?

Your work in this field might include determining, measuring, and mapping the shape, size, and location of natural and manmade objects or features on the surface of the earth. You might explore and examine earth structures to determine the location of minerals, gas, oil, or water. You might be involved in one or more of the following tasks: (1) measuring the boundaries of sections of land; (2) taking and explaining seismograms (machine recordings of earthquakes); or other recordings, samples, measurements and tests of underground structures; (3) locating the positions of aircraft and giving flight directions; (4) studying photographs of the ground taken from aircraft to become familiar with a section of land; and (5) preparing maps, charts, and sketches from information collected.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this field require that you (1) understand and use mathematics such as geometry and trigonometry, (2) enjoy working out-of-doors, (3) have drawing skills, (4) be able to use your fingers quickly and accurately, (5) have good vision (sight) and health, and (6) be able to see differences in shapes and sizes as well as to determine how something that is three dimensional (solid) can be drawn or illustrated on paper or on some other two-dimensional (flat) surface.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- good grades in English and mathematics courses
- either freehand or mechanical drawing skills
- taking part in outdoor activities
- rock collecting or photography as hobbies

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

A high school education is usually the minimum requirement for entry into the kinds of work described in this group. Your school preparation should include courses in map reading, freehand and mechanical drawing, mathematics, geography, and the earth sciences.

Summer employment with surveying or prospecting teams in the construction or petroleum industries provides excellent experience. Some employers offer formal courses in surveying so that new workers can learn surveying methods and the use of surveying instruments while on the job.

Some technical and vocational schools, as well as some colleges, offer programs in surveying. Extension (off-campus) courses are also available.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

0 Rating information using standards that can be measured or checked.

Y Working within precise limits or standards of accuracy.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

1 Activities dealing with things and objects

7 Activities of a scientific and technical nature.

9 Activities which are nonsocial and involve the use of machines, processes, or methods.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

6 Over 1 year up to and including 2 years.
7 Over 2 years up to and including 4 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

	ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY				
	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	
N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.				▨	
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.				▨	
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.				▨	
K – MOTOR COORDINATION: ability to coordinate the use of eyes and hands or fingers rapidly and accurately to perform a task.			▨		
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.			▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **5 4**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **L M 2 4 6**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.188 .288**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

88	Mathematics, Physical Sciences, and Related Research
58	Engineering and Related Work
56	Drafting and Related Work
75	Materials Analysis and Related Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **385**. Volume I of the DOT lists these jobs in **alphabetical** order and gives further information.

61

Data-High
People-Low
Things-Low

Technical Writing and Related Work

Technical writing means to prepare written descriptions having to do with mechanical or scientific ideas or activities. Examples of workers in this group are Process-Description Writer, Engineering-Specification Writer, and Technical-Publications Writer.

WORK PERFORMED – What would you do as a worker in this field?

For work in this field you would need both a technician's understanding of how things work and a writer's ability to explain things clearly. In general, your work would include preparing written information about technical operations and developments, about the kinds and uses of industrial property, and about machines – how they work, what they do, and how they fit into work patterns. Specific tasks might involve collecting information by observing industrial activities; by interviewing (talking with) technical workers; by reading and studying technical drawings, journals, and manuals. Also involved might be writing descriptions of new or better work methods, operations, regulations, and machine processes; or rewriting or improving materials written by others. These materials might include such technical publications as bulletins, articles, and service manuals.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this field require that you (1) understand technical subject matter and terminology (the special words used), (2) express yourself clearly and effectively in speaking or writing, (3) be able to look at flat drawings and visualize (imagine) how they would look as solid objects, and (4) be able to identify important facts and organize them so that all needed information is presented in the most effective way.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- experience in writing for the school newspaper
- skill in explaining things
- scientific or technical hobbies
- interest in reading scientific and technical literature
- good grades on written reports in science classes

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

A bachelor's (four-year) degree is usually required for jobs in this field. A degree in technical writing is desirable, but not many schools offer this degree. As a result, employers frequently select those who have degrees in journalism or English together with some scientific or technical training. You might be considered for work in this field if you have a technical education and/or technical work experience and can demonstrate skill in writing.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

0 Rating information using standards that can be measured or checked.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

6 Activities concerned with people and the communication of ideas – rather than – activities dealing with things and objects.

7 Activities of a scientific and technical nature – rather than – activities involving business contact with people.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

6 Over 1 year up to and including 2 years.
7 Over 2 years up to and including 4 years.

APTITUDES — The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	▨
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.			▨	▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) — The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **5**

PHYSICAL DEMANDS — The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **5 6**

DATA-PEOPLE-THINGS (D-P-T) — The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.188 .288**

RELATED GROUPS OF JOBS — Other Worker Trait Groups related to this Worker Trait Group include:

58	Engineering and Related Work
55	Engineering, Scientific, and Technical Coordination
59	Industrial Engineering and Related Work
111	Journalism and Editorial Work
57	Technical Work, Engineering and Related Fields

ADDITIONAL INFORMATION — You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, **page 387**. Volume I of the DOT lists these jobs in **alphabetical** order and gives further information.

62

Data-High
People-High
Things-Low

Creative Entertainment Work, N.E.C.

Creative entertainment means to use your skills and imagination to create and present original material or an act for the amusement of others. N.E.C. (Not Elsewhere Classified) means that these jobs are not included in other groups. Examples of workers in this group are Story Teller, Comedian, Magician, and Song and Dance Man.

WORK PERFORMED – What would you do as a worker in this field?

In this work you would entertain or amuse others by making up and presenting original acts, or by presenting in your own way, acts which someone else made up. The work would require you to have an active imagination since you might need to change or add to each performance, depending upon the type of audience being entertained, the latest trends or styles of entertainment, and how well your material is received.

WORKER REQUIREMENTS – What qualifications would you need?

Work in this field would require you to (1) use your imagination to make up new or change old material; (2) speak easily and understandably; (3) remember speeches, movements, and directions; (4) sense the feelings of your audience and change your act as necessary; (5) be skillful in using your fingers, hands, and arms as needed to move props or make gestures (body movements); (6) appear at ease in front of people; and (7) have a desire for public recognition.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- playing parts in school or community variety shows
- skill in using language and in memorizing materials
- enjoyment of recognition by others
- successful experience performing or speaking in front of groups
- interest and skill in making up your own acts
- experience in magic or puppetry

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Becoming successful in this field is often a slow process. You might start by working on the edges of show business – that is, by helping or watching an experienced performer, or by working backstage or on some other job in or near a theater or nightclub. This experience would enable you to learn and to make contacts with people who can help you get started in creative entertainment. You would need to work up an act and have it shaped up and criticized by a director, manager, agent, or someone else who knows the ins and outs of show business. Entry might come through successful auditions (tryouts) for musical reviews, night clubs, television shows, or films. As an entertainer, your career would probably be guided by an agent who would work closely with theatrical booking agencies (companies that match entertainers with places needing their services).

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

5 Dealing with people in actual job duties beyond giving and receiving instructions.

X Interpreting feelings, ideas, or facts from a personal point of view.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

5 Activities which bring recognition or appreciation by others.

6 Activities concerned with people and the communication of ideas.

8 Activities of an unusual, indefinite nature which require creative imagination.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

6 Over 1 year up to and including 2 years.

7 Over 2 years up to and including 4 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.			▨	▨	
K – MOTOR COORDINATION: ability to coordinate the use of eyes and hands or fingers rapidly and accurately to perform a task.		▨	▨	▨	
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.		▨	▨	▨	
M – MANUAL DEXTERITY: ability to work easily and skillfully with the hands.		▨	▨	▨	
E – EYE-HAND-FOOT COORDINATION: ability to coordinate the movements of the hands and feet according to visual signals and directions.	▨ *			▨ *	

*Different levels of eye-hand-foot coordination are required by different jobs in this group.

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **4 5**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **S L M 3 4 5 6**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.048**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

63	Dramatics
66	Rhythmics
69	Miscellaneous Amusement and Recreation Work
68	Amusement and Entertainment Work, Physical
70	Specialty Entertainment Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **390**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

63

Data-High
People-High
Things-Low

Dramatics

Dramatics means to act or play the part or role of a character in a play or movie or in television or radio programs or advertising. Examples of workers in this group are Actor, Actress, and Dramatic Reader.

WORK PERFORMED – What would you do as a worker in this field?

In this job group, you would mainly be concerned with entertaining others by words and actions. For each assignment you would (1) audition (try out) for a role or part, (2) learn lines, (3) use the right gestures (body and facial movements) to help express what you are saying, (4) work with a director during rehearsals (practice performances) to develop the best possible interpretation of the character you play, (5) add costume and make-up, and (6) perform before an audience. Your acting might be in front of a live audience, before television or movie cameras, or some combination of these.

WORKER REQUIREMENTS – What qualifications would you need?

In this field you need to (1) speak easily and understandably; (2) remember lines, movements, and directions; (3) use imagination to find new ways of doing things; (4) appear confident and at ease in front of people; and (5) be able to adjust to changing or unexpected situations.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- good speaking voice
- ability to appear at ease in front of a group
- attractive or unusual personal appearance
- taking part in school, church, or other amateur (nonprofessional) performances
- success in public speaking courses

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

There are many ways for you to get training in dramatics. You may study in a playhouse or academy of dramatic art, receive individual instruction from an acting coach, play small roles and do backstage work in summer stock or local professional theater groups, or take active part in a community amateur group. It is also possible to take courses in drama and theater in colleges and universities. Many of these offer programs in which you can earn a college (four year bachelor's) degree or a graduate (beyond bachelor's) degree.

People sometimes get into professional acting by moving from a related type of work such as dancing, modeling, or radio announcing.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

1 Performing a variety of duties which may often change.

5. Dealing with people in actual job duties beyond giving and receiving instructions.

9 Rating information by using personal judgment.

X Interpreting feelings, ideas, or facts from a personal point of view.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

5 Activities which bring recognition or appreciation by others.

6 Activities concerned with people and the communication of ideas.

8 Activities of an unusual, indefinite nature which require creative imagination.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

7 Over 2 years up to and including 4 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	▨
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.				▨	▨

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **4 5**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: L 5

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.048**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

62	Creative Entertainment Work, N.E.C.
66	Rhythmics
67	Radio Announcing and Related Work
70	Specialty Entertainment Work
71	Modeling and Related Work
68	Amusement and Entertainment Work, Physical

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **392**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

64

Data-High
People-High
Things-Low

Musical Work, Instrumental

Instrumental musical work means to play a musical instrument or to direct an instrumental music group for the entertainment of others. Examples of workers in this group are Music Director Musical Entertainer, Instrumental Musician, and Orchestra Leader.

WORK PERFORMED – What would you do as a worker in this field?

In this field you would entertain others by playing a musical instrument or by conducting (directing) orchestras or other types of instrumental groups. Usually, you would specialize in playing one instrument, such as the piano, guitar, clarinet, or drums, and one type of music, such as popular, folk, rock, or classical. You might perform alone or as part of a group. Your performances might be before live audiences, in front of television or movie cameras, or they might be recorded on tapes or records.

WORKER REQUIREMENTS – What qualifications would you need?

To do well in this field, you would need to (1) complete musical training, which may be long and difficult; (2) play one or more musical instruments well; (3) be able to arrange or interpret musical numbers; (4) understand musical terms; (5) be able to recognize and remember musical notes and symbols (markings); (6) be able to coordinate the movement of your eyes, hands, fingers, and feet (make them work together) as necessary for playing or conducting.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- interest and success in music lessons
- willpower to practice
- membership in high school band or musical group
- collecting sheet music or phonograph records as a hobby

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

The best preparation for this field is to earn a degree in music from a college, or train in a conservatory of music (school for advanced music study). However, some people who have talent and a feeling for music become professional musicians by studying music and playing an instrument on their own for a number of years. You would usually start by playing in small musical groups in your school or neighborhood. You would advance as you gain experience and have opportunities to perform for people who might hire you or who might help your career by calling you to the attention of others.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

9 Rating information by using personal judgment.
X Interpreting feelings, ideas, or facts from a personal point of view.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

5 Activities which bring recognition or appreciation by others.

6 Activities concerned with people and the communication of ideas.

8 Activities of an unusual, indefinte nature which require creative imagination.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

8 Over 4 years up to and including 10 years.
9 Over 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.			▨	▨	
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.			▨	▨	
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.			▨		
K – MOTOR COORDINATION: ability to coordinate the use of eyes and hands or fingers rapidly and accurately to perform a task.				▨	
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.				▨	
M – MANUAL DEXTERITY: ability to work easily and skillfully with the hands.				▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 4 5

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: S L 6 4

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .048

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

65	Musical Work, Vocal
100	Musical Work, Creative
1	Instructive Work, Fine Arts, Theater, Music, and Related Fields

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **394**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

Musical Work, Vocal

65

Data-High
People-High
Things-Low

Vocal musical work means to sing or to direct vocal groups for the entertainment of others. Examples of workers in this group are Choirmaster, Choral Director, Concert Singer, and Popular Singer.

WORK PERFORMED – What would you do as a worker in this field?

In this field you would entertain others by singing or by directing others in singing classical, folk, rock, or popular music. You might perform alone or as part of a group. Your performances might be before live audiences, in front of television or movie cameras, or they might be recorded on tapes or records. You would usually be accompanied by a band or orchestra, or by a single instrument such as a piano or guitar.

WORKER REQUIREMENTS – What qualifications would you need?

To do well in this field of music, you need a good singing voice. You may also need (1) vocal music (voice) training, (2) the ability to read the lyrics (words) of songs easily, (3) an understanding of musical terms, (4) the ability to sing in a foreign language (as for an opera), and (5) the ability to recognize and remember musical notes and symbols. You should also desire recognition by the public and be able to get across to an audience your interpretation of the music you are singing or directing.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- membership in church choir or school glee club
- performing successfully in amateur musical plays
- success in singing lessons
- directing your own musical group

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Entry into this work is easier if you have been trained in a music conservatory, in a college or university, or through private voice lessons. However, you might enter this field without formal training, by showing your talent in amateur (nonprofessional) shows and attracting the attention of those who might help your career. Entry into opera requires many years of study and practice in foreign languages as well as music.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

5 Dealing with people in actual job duties beyond giving and receiving instructions.
X Interpreting feelings, ideas, or facts from a personal point of view.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

5 Activities which bring recognition or appreciation by others.
6 Activities concerned with people and the communication of ideas.
8 Activities of an unusual, indefinite nature which require creative imagination.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

7 Over 2 years up to and including 4 years.
8 Over 4 years up to and including 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	▨
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.				▨	▨
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.			▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 4 5

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: L 5 6

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .048

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

64	Musical Work, Instrumental
100	Musical Work, Creative
1	Instructive Work, Fine Arts, Theater, Music, and Related Fields

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page 396. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

66

Data-High
People-High
Things-Low

Rhythmics

Rhythmics, as it is used here, is the science of rhythm, involving movement to music or to a regularly occuring sound or beat. Examples of workers in this group are Acrobatic, Ballet, Ballroom, Chorus, Tap, and Interpretative Dancers.

WORK PERFORMED – What would you do as a worker in this field?

In this field, you would entertain others by performing dance movements, usually accompanied by music. You might specialize in one or more types of dancing such as ballet, ballroom, interpretative, acrobatic, chorus, or tap. Your dance steps might be planned and directed by someone else (a choreographer), especially in classical dancing such as ballet. In modern solo or single partner dancing, you might create your own dance steps to tell a story, to express your feelings, or to respond to the music, such as in interpretative dancing. You might perform alone, with a partner, or in a group.

WORKER REQUIREMENTS – What qualifications would you need?

To do well in this field, you must (1) be able to learn different methods of dance through concentrated training and practice; (2) use imagination to understand and communicate the meaning or story of your dance to your audience; (3) be able to make exact movements in step with other dancers, as in ballet or chorus dancing; (4) appear at ease in front of an audience; (5) hear and understand musical rhythms and beats clearly enough to dance to them; (6) coordinate the movement of your eyes, hands and feet (make them move together) as your dance requires; (7) see and understand spacing and movement so that you can fit into dance patterns with others; and (8) stay in good physical condition. A sincere desire for public recognition may help you to advance more rapidly.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- formal dancing lessons during childhood
- performance in school musicals and dance recitals
- enjoyment of musical plays and movies
- enjoyment of individual and group exercises in gym classes

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Formal training in a dancing school beginning at an early age is the recommended background and training for entry into this work. For a well rounded background, you might take advantage of physical education programs, offered by colleges and universities, which emphasize dancing. You might enter this field by showing your talent in amateur (nonprofessional) shows or summer theater musical productions and attracting the attention of those who might help your career.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

9 Rating information by using personal judgment.
X Interpreting feelings, ideas, or facts from a personal point of view.
Y Working within precise limits or standards of accuracy.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

5 Activities which bring recognition or appreciation by others.
6 Activities concerned with people and the communication of ideas.
8 Activities of an unusual, indefinite nature which require creative imagination.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

7 Over 2 years up to and including 4 years.
8 Over 4 years up to and including 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.			▨		
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.				▨	
E – EYE-HAND-FOOT COORDINATION: ability to coordinate the movements of the hands and feet according to visual signals and directions.					▨

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **5 4**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **M H 2 3 4 5 6**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.048**

RELATED GROUPS OF JOBS – Other groups of jobs related to Decorating and Art Work described in this publication are

63	Dramatics
47	Physical Education
68	Amusement and Entertainment Work, Physical
71	Modeling and Related Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **398**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

Radio Announcing and Related Work

67

Data-High
People-High
Things-Low

Announcing as used here, means presenting information to viewing or listening audiences as well as to live audiences in studios or similar private or public gatherings. Examples of workers in this group are Sports Announcer, Interpreter, Motion Picture Narrator, Radio or TV Announcer, and Disk Jockey.

WORK PERFORMED – What would you do as a worker in this field?

In this field of work you might introduce radio and television programs, present commercials on these programs, give running descriptions and comments on live-action events such as football games, or act as master of ceremonies for banquets or similar social functions. You would read from a prepared script, present memorized material, speak on a subject extemporaneously (as the thoughts occur to you), or describe events as they happen such as in sports announcing.

WORKER REQUIREMENTS – What qualifications would you need?

To do well in this field you need to (1) speak easily and clearly with a good vocabulary and with a pleasant voice; (2) be original and creative when speaking extemporaneously (with little or no advance preparation); (3) perform so that the audience, whether seen or unseen, has confidence in what you say; and (4) memorize well.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- feeling comfortable in front of an audience
- a good vocabulary and clear speaking voice
- taking part in drama groups, choir, and public speaking groups
- success in classes in public speaking, dramatics, or singing
- interest in current events
- enjoyment of reading

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

There are many ways to receive training for this field, such as taking courses in languages, public speaking, or singing while in high school, college, special schools, or through private lessons. You can gain experience by acting in plays, singing in choirs, or speaking before groups. Small radio stations sometimes require an announcer to have a first class radiotelephone operator's license which allows him to double as an operator or technician.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

1 Performing a variety of duties which may often change.
5 Dealing with people in actual job duties beyond giving and receiving instructions.
9 Rating information by using personal judgment.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

5 Activities which bring recognition or appreciation by others.

6 Activities concerned with people and the communication of ideas.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

4 Over 3 months up to and including 6 months.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.				▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 5

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: S 5

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .148 .268

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

63	Dramatics
113	News Reporting and Related Work
109	Radio and Television Transmitting and Receiving

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page 400. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

68

Data-High
People-High
Things-Low

Amusement and Entertainment Work, Physical

Physical amusement and entertainment work means to use physical skill or strength to provide amusement or entertainment for others. Examples of workers in this field are Automobile Racer, Athlete, Acrobat, Jockey, and Stunt Man.

WORK PERFORMED – What would you do as a worker in this field?

As a worker in this field, you would use physical strength, quick thinking, nimbleness, daring, or some combination of these to entertain people. You might perform by yourself or as part of a team. Your performance might be planned ahead or it might involve reacting spontaneously (immediately) to each different situation such as in competition. Activities may occasionally involve the skillful handling of rapidly moving vehicles or animals such as race cars or horses.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this field require you to (1) stay physically fit; (2) coordinate the movement of your eyes, hands, fingers, and feet (make them work together) as demanded by a particular job; (3) judge distances between objects; (4) keep calm under pressure, uncomfortable conditions, or unexpected situations; and (5) follow plans, required procedures, or instructions accurately.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- successful performance on school athletic teams
- good grades in physical education courses
- excellent health record
- hobbies such as weight lifting, karate, horseback riding, or hot-rod driving

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Good physical training is very important if you plan to enter this job field. This may be gained in physical development programs in schools, church organizations, and health clubs. Coaching and training given to you by any experienced person is of value.

Becoming a skilled performer in this field often requires months or years of exercise and practice. While trying to become established you might perform behind or in support of a well-known performer. After your basic skills have become almost automatic, you would work to improve your performance and increase your crowd appeal. Eventually, you would show your skills to an agent or employer and upon reaching an agreement with him, would sign a contract allowing him to guide your career.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

8 Working well under pressure when faced with critical or unexpected situations or when taking necessary risks.
9 Rating information by using personal judgment.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

5 Activities which bring recognition or appreciation by others.
6 Activities concerned with people and the communication of ideas.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

5 Over 6 months up to and including 1 year.
6 Over 1 year up to and including 1 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.				▨	
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.				▨	
K – MOTOR COORDINATION: ability to coordinate the use of eyes and hands or fingers rapidly and accurately to perform a task.			▨	▨	
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.			▨	▨	
M – MANUAL DEXTERITY: ability to work easily and skillfully with the hands.			▨	▨	
E – EYE-HAND-FOOT COORDINATION: ability to coordinate the movements of the hands and feet according to visual signals and directions.			▨	▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **3 4**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **M H V 2 3 4 5 6**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.248 .348**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

66	Rhythmics
47	Physical Education
77	Transporting and Test Driving
70	Speciality Entertainment Work
71	Modeling and Related Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **402**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

69

Data-Average
People-Average
Things-Low

Miscellaneous Amusement and Recreation Work

Miscellaneous amusement and recreation work means a collection of different types of work all relating to amusement or recreation. Examples of workers in this group are Ring Master, Horse-Race Starter, Bookmaker, Floorman, and Gambling Dealer.

WORK PERFORMED – What would you do as a worker in this field?

In this field you would contribute to the amusement or recreation of persons by arranging, overseeing, or presenting a steady flow of entertainment, such as circus acts or gambling. You might frequently speak to customers, but would not do actual entertaining. However, you would help your customers enjoy themselves by planning and explaining the type of recreation involved, usually some type of game of chance.

WORKER REQUIREMENTS – What qualifications would you need?

To do well in this area of work, you would be required to (1) talk with customers easily; (2) use mathematics to figure the odds (the chances of winning and losing in games of chance and the amount of money to be paid each winner); (3) keep accurate records of bets; (4) coordinate the movement of your hands and fingers (make them work together) in such tasks as dealing cards; (5) get along well with different kinds of people; and (6) understand and follow rules and methods of gambling.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- success in running bingo games at church or social functions
- being familiar with different types of card games
- good appearance and speaking voice
- successfully serving on a school carnival committee

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Gambling of one type or another is a main source of income in some sections of the country. You would be hired as a gambling worker on the basis of your knowledge of the controlling regulations (laws) and your willingness to learn and follow the rules of the gambling house which employs you. You would probably start in a position which does not involve highly responsible duties or serious risks, and would be given the opportunity to observe and learn the methods and skills of experienced workers.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

5 Dealing with people in actual job duties beyond giving and receiving instructions.
9 Rating information by using personal judgment.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

5 Activities which bring recognition or appreciation by others.
6 Activities concerned with people and the communication of ideas.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

2 Anything beyond short demonstration up to and including 30 days.
3 Over 30 days up to and including 3 months.
4 Over 3 months up to and including 6 months.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.			▨		
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.			▨		
N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.		▨	▨		
Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.		▨	▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 3

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: L 4 5

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .268 .368 .468

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

70	Specialty Entertainment Work
102	Customer Service Work, N.E.C.
17	Scheduling, Dispatching, Expediting, and Related Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page 404. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

70

Data-Low
People-High
Things-Low

Specialty Entertainment Work

Specialty entertainment means the use of some special gimmick or attention-getting action to attract and hold the attention of an audience, usually for a short period of time. Examples of workers in this group are Show Girl, Promotion Character, Fire Eater, Fortune Teller, and Snake Charmer.

WORK PERFORMED – What would you do as a worker in this field?

In this field you would entertain others by a demonstration (showing) of skill, daring, or knowledge which exhibits either unusual physical or mental ability or skill in illusion (fooling an audience). Your act would probably be short and would not change much from show to show since you would be known for your specialized skill.

WORKER REQUIREMENTS – What qualifications would you need?

To do well in this field you must (1) be able to talk naturally and easily to an audience, (2) appear at ease when performing in public, (3) judge distances between objects when using physical movements, (4) see differences in shapes and sizes when it is important to your job, (5) look attractive or unusual, (6) be able to stand physical strain, and (7) possess some unusual talent which an audience will pay to see.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- attractive or unusual appearance
- willingness to be the center of attention
- desire to go into show business
- effective manner of speaking
- success in amateur (nonprofessional) entertainment programs
- interest in watching professionals perform

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Since there are so many different kinds of activities in this group, the kind of training you need depends upon the particular work situation. If your act were to involve only simple entertainment requiring little more than physical strength, appearance, or skills that you already possess, then you might step right into a job. Some acts, however, require months of preparation and practice. You would probably work for employers such as circuses, carnivals, or night clubs. You might employ an agent to help you find employment.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

2 Repeating activities or tasks of short duration according to a required routine procedure or sequence.

5 Dealing with people in actual job duties beyond giving and receiving instructions.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

5 Activities which bring recognition or appreciation by others.

6 Activities concerned with people and the communication of ideas.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

1 Short duration only.

2 Anything beyond short demonstration up to and including 30 days.

3 Over 30 days up to and including 3 months.

APTITUDES — The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G — INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.		▨	▨		
V — VERBAL: ability to understand meanings of words and ideas, and to present information effectively.			▨		
S — SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.		▨	▨		
P — FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.		▨	▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) — The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **2 1**

PHYSICAL DEMANDS — The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **L 5 3 4**

DATA-PEOPLE-THINGS (D-P-T) — The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.848**

RELATED GROUPS OF JOBS — Other Worker Trait Groups related to this Worker Trait Group include:

68	Amusement and Entertainment Work, Physical
62	Creative Entertainment Work, N.E.C.
69	Miscellaneous Amusement and Recreation Work
66	Rhythmics

ADDITIONAL INFORMATION — You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **406**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

71

Data-Low
People-Average
Things-Low

Modeling and Related Work

Modeling means to pose (serve as a pattern) for an artist, sculptor, or photographer or to display articles of clothing by wearing them. Examples of workers in this group are Model, Photographer's Model, Artist's Model, Stand-In, and Double.

WORK PERFORMED – What would you do as a worker in this field?

In this field, you might display all or parts of your body for decorative, artistic, or similar purposes. You might pose for artists or sculptors, or you might display new clothes by wearing them before potential customers. You might also pose for TV commercials or for photographers who take pictures for advertisements. For some jobs you would stand in place to represent an actor, actress, or model while lighting is arranged.

WORKER REQUIREMENTS – What qualifications would you need?

In this field you need to look attractive or unusual, be able to stand physical strain, adjust to doing the same kind of work over and over, appear natural and at ease in front of people or cameras, and understand and follow instructions.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- attractive or unusual appearance
- attractive manner of dressing
- experience as a beauty contest member
- dancing skills
- experience in dramatics

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

The most direct way for you to get into modeling is by attending a modeling or charm school. Most of these schools have connections with modeling agencies and other organizations which help people find jobs. Large organizations sometimes hire untrained persons on the basis of looks and their basic ability to learn, and train them in the fine points of modeling.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include judgment in working out job problems.

2 Repeating activities or tasks of short duration according to a required routine procedure or sequence.

3 Doing things only under specific instructions, allowing little or no room for independent action or

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

3 Activities of a routine, definite, organized nature.

6 Activities concerned with people and the communication of ideas.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

2 Anything beyond short demonstration up to and including 30 days.

3 Over 30 days up to and including 3 months.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

	ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY				
	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.		▨	▨		
E – EYE-HAND-FOOT COORDINATION: ability to coordinate the movements of the hands and feet according to visual signals and directions.		▨	▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **3 2**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **L 2 3**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.868**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

66	Rhythmics
47	Physical Education
70	Specialty Entertainment Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook,** the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **408**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

72

Data-High
People-Low
Things-High

Cropping, Animal Farming, Gardening, and Related Work

Cropping, animal farming, and gardening means raising crops and animals to be used as food or for other purposes. Examples of workers in this group are Beekeeper, Animal Breeder, Gamekeeper, General Farmer, Dairy Farmer, Tree Surgeon, and Landscape Gardener.

WORK PERFORMED – What would you do as a worker in this field?

Your work in this field would involve farming, gardening, or animal breeding and raising. You might work for yourself or be employed by others. As a plant farmer you would use your knowledge about which crops will grow best in particular types of soil. You would plant, tend, and harvest crops with or without the help of machines and other workers. As an animal farmer, you would breed, raise, and care for different types of animals or one special kind such as cows, chickens, or pigs.

WORKER REQUIREMENTS – What qualifications would you need?

For this kind of work you should (1) like outdoor work, (2) be able to understand and use scientific methods of plant agriculture (farming), (3) use your hands and fingers rapidly and accurately, (4) coordinate the movement of your eyes and hands (make them work together) the way a particular task requires, (5) be able to stand physical strain, and (6) be able to perform related business-management tasks such as buying, selling, and record keeping.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- membership in 4-H or Future Farmers of America
- interest in reading magazine or books about the outdoors
- successful gardening or farming as a hobby
- good physical condition
- success in agriculture courses in high school or college

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Growing up on a farm or in a rural area offers the best preparation for entry into this field. Opportunities to enter as a hired hand are limited, since employment may be affected by seasonal changes (most farming is done in the warm months) and because most farm work is now done by machines.

For information and advice about opportunities for training and entry into this field you should consult the county agricultural agent in your area. (Look in the phone directory under county government listings.) Some high schools, colleges, and groups, such as 4-H Clubs and Future Farmers of America, offer day and evening classes in subjects related to agriculture. Young farmer and adult farmer programs provided by different levels of government offer training in farming subjects such as pest control, land use, and cattle breeding.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

1 Performing a variety of duties which may often change.
4 Directing, controlling, and planning an entire activity or activities of others.
9 Rating information by using personal judgment.
0 Rating information using standards that can be measured or checked.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

1 Activities dealing with things and objects.
7 Activities of a scientific and technical nature.
9 Activities which are nonsocial and involve the use of machines, processes, or methods.
0 Activities which bring personal satisfaction from working on or producing things.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

6 Over 1 year up to and including 2 years.
7 Over 2 years up to and including 4 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.			▨	▨	
K – MOTOR COORDINATION: ability to coordinate the use of eyes and hands or fingers rapidly and accurately to perform a task.		▨	▨		
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.		▨	▨		
M – MANUAL DEXTERITY: ability to work easily and skillfully with the hands.			▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 4 5

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: L M H 2 3 4 6

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .181

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

33 Supervisory Work (Farming, Logging, Manufacturing, Processing, Construction, Transportation, and Related Activities) [Working Supervisors]
34 Supervisory Work (Farming, Logging, Manufacturing, Processing, Construction, Transportation, and Related Activities) [Non-Working Supervisors]
42 Vocational Education
73 Technical Work, Science and Related Fields
107 Animal Care

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, **page 411**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

73

Data-Average
People-Low
Things-Average

Technical Work, Science and Related Fields

Technical work in science and related fields means to use a practical working knowledge of the basic sciences to assist (help) a scientist or to perform routine scientific duties. Examples of workers in this group are Chemist Helper (petroleum), Biological Aid, Scientific Helper, and Forester Aid.

WORK PERFORMED – What would you do as a worker in this field?

In this field, you would use your knowledge of one or more of the basic sciences to perform supporting activities which would help scientists and scientific workers in their work. Your work would usually be done according to set or standard methods under the direction of a higher level or more experienced scientific worker. You would probably work in a laboratory or similar setting. Your tasks might include collecting samples, performing simple tests, preparing equipment, recording information, and cleaning equipment such as bottles and test tubes.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this field would require you to (1) learn and use technical knowledge, following set procedures; (2) learn and use technical language; (3) see small differences in the shape, size, and make-up of materials; (4) use your hands and fingers easily and accurately in handling small and breakable objects; and (5) pay close attention to detail so that your work is done exactly as required.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- success in high school science courses
- taking part in school science fairs and exhibits
- hobbies such as rock collecting, bird watching, or gardening
- reading scientific material or entertaining yourself with scientific experiments

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Six months to one year is usually enough time for you to become familiar with the language and methods of a specific scientific area. Training for technical work in science can be obtained through courses and related laboratory practice in high school or after high school graduation.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

0 Rating information using standards that can be measured or checked.
Y Working within precise limits or standards of accuracy.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

3 Activities of a routine, definite, organized nature.
7 Activities of a scientific and technical nature.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

3 Over 30 days up to and including 3 months.
5 Over 6 months up to and including 1 year.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – **INTELLIGENCE**: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.			▨		
P – **FORM PERCEPTION**: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.			▨	▨	
M – **MANUAL DEXTERITY**: ability to work easily and skillfully with the hands.			▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **4 3**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **L M 4 6**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.384**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

75	Materials Analysis and Related Work
22	Inspecting and Stock Checking
55	Engineering, Scientific, and Technical Coordination

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, Dictionary of Occupational Titles (DOT), Third Edition, page 413. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

74

Data-High
People-Average
Things-Low

Investigating, Protecting, and Related Work

Investigating, as used here, means to conduct an official search, examination, or study. Protecting means to shield, guard, or defend, or to prevent harm or injury. Examples of workers in this group are Building Inspector, Coroner, Postal Inspector, Claim Adjuster, Insurance Examiner, Park Ranger, FBI Special Agent, Fish and Game Warden, Policewoman, and Patrolman.

WORK PERFORMED – What would you do as a worker in this field?

In this area of work, you would conduct investigations and examinations to determine or make sure that rules are being followed and laws obeyed which affect the safety and welfare (best interests) of the public. You would also be concerned with laws made to protect private citizens and their property. Specific tasks might be to inspect buildings and determine health or safety hazards, examine dead persons to determine the time and cause of death, investigate accidents to settle insurance claims, enforce hunting and fishing laws, investigate crimes to determine the guilt of suspects, or check to make sure postal regulations are being obeyed.

WORKER REQUIREMENTS – What qualifications would you need?

To do well in this job group you need to (1) gain a thorough knowledge of laws, regulations, and investigation methods; (2) be able to communicate easily and get along with all kinds of people; (3) be able to work under pressure and stay calm in the face of danger or opposition; (4) gather facts and determine their importance; (5) act in a manner that will cause others to respect and have confidence in you; and (6) be able to stand physical strain.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- being a school safety-patrol guard or leader
- success in special subjects or courses, such as criminology or methods of investigation
- interest in reading detective stories and biographies of lawmakers and law enforcers
- fishing or hunting as a hobby

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

For most jobs in this group, you need a high school education. Some require a college degree. The amount of education you need depends upon the kind of job you want. In most cases, beginning workers must pass fairly difficult entrance examinations and then go through special training, followed by a period of on-the-job practice under the direction of an experienced worker.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

4 Directing, controlling, and planning an entire activity or activities of others.
5 Dealing with people in actual job duties beyond giving and receiving instructions.
8 Working well under pressure when faced with critical or unexpected situations or when taking necessary risks.
9 Rating information by using personal judgment.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

2 Activities involving business contact with people.
5 Activities which bring recognition or appreciation by others.
6 Activities concerned with people and the communication of ideas.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

5 Over 6 months up to and including 1 year.
6 Over 1 year up to and including 2 years.
7 Over 2 years up to and including 4 years.
8 Over 4 years up to and including 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.			▨	▨	
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.				▨	
N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.		▨	▨		
Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.		▨	▨	▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **5 4**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **S L 4 5 6**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.168 .268**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

76	Appraising and Investigating Work
78	Legal and Related Work
79	Protecting and Related Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **416**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

75

Data-High
People-Low
Things-High

Materials Analysis and Related Work

Materials analysis means to examine and test various substances to determine exactly what they contain and whether they meet required standards. Examples of workers in this group are Pharmacist, Cytotechnologist, Medical Technologist, Gemologist, Metallurgist Assistant, and Chemical-Laboratory Technician.

WORK PERFORMED – What would you do as a worker in this field?

In this field you would examine, test, or combine such materials as ores, foods, chemicals, or drugs. To do this might require a knowledge of chemistry, physics, metallurgy (the study and use of metals), or other sciences. Your work might be as simple and personal as food-tasting, or as complicated as using the results of research studies to determine the quality of fuels, gems, or textiles.

WORKER REQUIREMENTS – What qualifications would you need?

To do well in this field, you need to (1) gain necessary background knowledge, (2) pay close attention to details, (3) understand and solve mathematics problems, and (4) recognize and understand physical differences in materials.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- prefer to do research work
- success in science and laboratory courses
- enjoying science as a hobby
- helping science teachers in coursework or laboratory

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Employers prefer to hire workers who have completed courses in mathematics, engineering, chemistry, or physics, including related laboratory work. After meeting these entry requirements, you would be given an opportunity to become skilled through on-the-job training. However, some jobs in this group require a college degree (bachelor's) and licensing by the state in which you work.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

O Rating information using standards that can be measured or checked.

Y Working within precise limits or standards of accuracy.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

1 Activities dealing with things and objects.

7 Activities of a scientific and technical nature.

9 Activities which are nonsocial and involve the use of machines, processes, or methods.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

5 Over 6 months and up to and including 1 year.
6 Over 1 year up to and including 2 years.
7 Over 2 years up to and including 4 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	▨
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.			▨	▨	▨
N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.			▨	▨	▨
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.			▨	▨	
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.		▨	▨		
C – COLOR DISCRIMINATION: ability to recognize likenesses and differences in colors and shades, to identify or match specific colors, and to select color combinations which go well together.		▨	▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **5 4**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **L 4 6**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.181 .281 .381**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

76	Appraising and Investigating Work
22	Inspecting and Stock Checking
27	Sorting, Inspecting, Measuring, and Related Work
88	Mathematics, Physical Sciences, and Related Work
87	Scientific Research

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **418**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

76

Data-High
People-Low
Things-Average

Appraising and Investigating Work

Appraising means judging the value, quality, or usefulness of something. Investigating, as used here, means examining an article or a building or an event to determine if it meets required standards and is meeting the purpose for which it was intended, or to discover why it fails to do so. Examples of workers in this group are Art Appraiser, Safety Inspector, Food and Drug Inspector, Construction Inspector, Real-Estate Appraiser, Ballistics Expert, and Radiation Monitor.

WORK PERFORMED – What would you do as a worker in this field?

In this field, you would use your knowledge of the principles and methods of such areas of work as mining, construction, sanitation, or merchandising (buying and selling) to judge the value or inspect the condition of objects, systems, activities, or processes. You might also check to see that what is being inspected meets established laws or standards. If it does not, you might need to suggest what should be done to correct the unsatisfactory condition.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this field require you to (1) learn and use the rules and methods of the job area, (2) use mathematics skills to investigate particular situations, (3) understand how objects shown in blueprints would look as finished products, and (4) recognize details in objects or drawings.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- successful work experience in a technical field
- preference for work that requires careful attention to details
- decision-making ability and willingness to accept responsibility

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

The best method of training for this field is through technical training and/or work experience in lower level jobs. Getting into this field depends upon how well you are able to apply your training and experience to a particular job.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

1 Performing a variety of duties which may often change.
9 Rating information by using personal judgment.
0 Rating information using standards that can be measured or checked.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

7 Activities of a scientific and technical nature.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

6 Over 1 year up to and including 2 years.
7 Over 2 years up to and including 4 years.
8 Over 4 years up to and including 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	**10%**	**23%**	**34%**	**23%**	**10%**
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.			▨	▨	
N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.			▨	▨	
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.			▨		
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.			▨	▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicates the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **4 5**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **L 5 6**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.187 .284 .287**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

22	Inspecting and Stock Checking
27	Sorting, Inspecting, Measuring, and Related Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **420**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

77

Data-High
People-Low
Things-High

Transporting and Test Driving

Transporting, as used here, means to carry, haul, or move something from one location to another by using a vehicle such as an airplane, helicopter, or train. Test driving means to try out a vehicle to see how well it performs and handles. Examples of workers in this group are Commercial-Airplane Pilot, Agricultural-Airplane Pilot, Helicopter Pilot, Test Pilot, Test Driver (automobile), and Locomotive Engineer.

WORK PERFORMED – What would you do as a worker in this field?

In this job group, you would drive or operate vehicles to test how well they work to haul things, or to provide some special service, such as crop dusting, seeding, or crime detection. The vehicles involved might be powered by diesel fuel, gasoline, steam, or electricity.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this field require you to (1) control the movement of vehicles according to schedules, signals, traffic regulations, and weather conditions; (2) understand and use technical information and material when testing a vehicle and when writing a report on its performance; (3) estimate distances between a vehicle and other objects; (4) discover errors in the performance of a vehicle and determine the cause; (5) coordinate the movement of your eyes, hands, and feet (make them work together) so you can move levers, pedals, and steering devices simultaneously (at the same time); (6) be able to stand physical strain; and (7) see and hear well. You should not have any physical handicaps which might slow your reactions.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- successful completion of auto-mechanics course in school
- driving cars in amateur (nonprofessional) races
- hobbies such as reading car magazines and collecting model cars
- building and flying model airplanes
- completion of a driver education course

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

For this type of work, you must be capable of operating or driving the vehicle you will be using or testing. You might be able to meet the requirements for a job in this field through training received in the military service, by gaining considerable driving and related experience, through on-the-job training, or by attending a school specializing in driver training.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

0 Rating information using standards that can be measured or checked.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

1 Activities dealing with things and objects.

9 Activities which are nonsocial and involve the use of machines, processes, or methods.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

7 Over 2 years up to and including 4 years.
8 Over 4 years up to and including 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.			▨	▨	
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.			▨	▨	
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.			▨		
K – MOTOR COORDINATION: ability to coordinate the use of eyes and hands or fingers rapidly and accurately to perform a task.			▨		
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.			▨		
M – MANUAL DEXTERITY: ability to work easily and skillfully with the hands.			▨		
E – EYE-HAND-FOOT COORDINATION: ability to coordinate the movements of the hands and feet according to visual signals and directions.		▨	▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **4 5**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **L 4 5 6**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.283 .368**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

- 110 Transportation Service Work
- 83 Driving - Operating
- 98 Delivery and Service Work, N.E.C.

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **422**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

78

Data-High
People-High
Things-Low

Legal and Related Work

Legal work is concerned with laws – how they are made, interpreted, and applied. Examples of workers in this group are Judge; District Attorney; Tax Attorney; and Criminal, Corporation, Patent, and Real-Estate Lawyers.

WORK PERFORMED – What would you do as a worker in this field?

In this field, you would apply your knowledge of existing city, county, state or federal laws to various legal procedures. As a lawyer or attorney you might be involved in any of the following activities: (1) giving advice to clients (people worked for) about their legal rights or obligations (duties); (2) representing clients in courts of laws; (3) preparing legal documents such as wills and divorce settlements; (4) investigating claims and damages to determine the amount of money that should be awarded to persons involved in lawsuits; (5) arranging legal agreements to be made out of court; (6) representing clients before government agencies which have legal and judicial powers, such as the Internal Revenue Service (tax agency); and (7) acting as manager of the estate (property) or legal affairs of clients, either during their lifetime or after their death. As a legal worker employed by the government, you might be concerned with the prosecution (trying to obtain convictions) of individuals accused of crimes. This would be done through representing the state or federal government in legal action, or by serving as a judge in a court.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this field require you to (1) gain necessary legal training and use the knowledge gained to solve legal problems; (2) use language skillfully and accurately; (3) get along with people; (4) be original, be persuasive, and use your imagination in presenting arguments to help your client; and (5) be absolutely accurate when doing detailed work.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- experience working with and for others
- good grades in school, particularly in the language arts
- a good vocabulary
- feeling at ease when talking before a group
- membership in a school debating club and successful experiences in debating
- preferring activities that require much reading and study

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Before you can practice law in the courts of any state, you must be admitted to the bar of that state. (The bar is the state approved group of practicing lawyers.) All states require all new lawyers to pass a written examination, except a few states that drop these requirements for graduates of their own law schools. If you are admitted to the bar in one state, you can usually practice in another without having to take an examination. In order to do this you must meet established standards of good moral character and have a specified amount of legal experience. The right to practice before federal courts and agencies is controlled by special regulations.

To qualify for the bar examination in most states, you must complete two or three years of college (pre-law) and then graduate from a law school approved by the American Bar Association or state authorities. In a few states you must complete a period of clerkship in a law office after your graduation from law school before you may take the bar examination.

You would probably start in this field as a salaried assistant to an experienced lawyer. At first your work would be limited to research (searching for and analyzing information relating to legal matters). After you have been given increasing responsibility as a salaried worker, gained experience, saved money, and established your reputation, you might go into practice for yourself.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

5 Dealing with people in actual job duties beyond giving and receiving instructions.
7 Influencing people's opinions, attitudes, or judgments about ideas or things.
9 Rating information by using personal judgment.
0 Rating information using standards that can be measured or checked.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

5 Activities which bring recognition or appreciation by others.
6 Activities concerned with people and the communication of ideas.
8 Activities of an unusual, indefinite nature which require creative imagination.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

7 Over 2 years up to and including 4 years.
8 Over 4 years up to and including 10 years.
9 Over 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.					▨
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.					▨
Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.		▨	▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **5 6**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **S L 5**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.108 .118 .168**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

74	Investigating, Protecting, and Related Work
76	Appraising and Investigating Work
14	Title and Contract Search and Analysis and Related Work
7	Contract Negotiating and Related Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **425**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

79

Data-Low
People-Average
Things-Low

Protecting, and Related Work

Protecting, as it is used here, means to guard or take care of something, or prevent destructive action. Examples of workers in this group are Process Server, Armored-Car Guard, Guard, Watchman, Detective, Deputy Sheriff, Lifeguard, Ski Patrolman, Dog Catcher, and Park Caretaker.

WORK PERFORMED – What would you do as a worker in this field?

In this work, you would provide services designed to defend the person, property, or rights of individuals, establishments, or the general public against injury, loss, or disturbance (interruption of the peace). You would guard against criminal or disorderly acts, unwanted visitors, accidents, fire, or other dangers.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this field require you to (1) act on your own in dealing with people and adjusting to changing or unexpected situations; (2) face danger or an opposing force calmly; (3) use your hands, fingers, and arms to handle guns easily and accurately; (4) be honest and dependable; and (5) be physically fit and able to stand physical strain.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- membership in clubs sponsored by the local police
- work experience as a lifeguard
- taking part in active sports such as skiing, boxing, or football
- membership in a gun club or hunting as a hobby

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Because of the importance and nature of some jobs in this group, you would have to go through strict training and pass difficult tests before being accepted. Beginners are usually teamed with an experienced worker and given little responsibility until they have gained considerable experience. Examination, training, and experience requirements vary from job to job. Experience and training in related fields, such as criminal investigation work, might improve your chances of employment.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

8 Dealing with people in actual job duties beyond giving and receiving instructions.

5 Working well under pressure when faced with critical or unexpected situations or when taking necessary risks.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

2 Activities involving business contact with people.

6 Activities concerned with people and the communication of ideas.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

3 Over 30 days up to and including 3 months.

4 Over 3 months up to and including 6 months.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.			▨		
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.			▨		
K – MOTOR COORDINATION: ability to coordinate the use of eyes and hands or fingers rapidly and accurately to perform a task.		▨			
M – MANUAL DEXTERITY: ability to work easily and skillfully with the hands.		▨			

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) -- The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 3

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: L

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .868 .878

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

74 Investigating, Protecting, and Related Work

76 Appraising and Investigating Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in **Volume II, Dictionary of Occupational Titles (DOT), Third Edition, page 427**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

Set Up and/or All-Round Machine Operating

80

Data-High
People-Low
Things-High

Setting up a machine means to prepare it to do its job. All-round machine operating means to operate a variety of machines. Examples of workers in this group are Cabinetmaker, Machinist, Tool-and-Die Maker, Gas-Plant Operator, Chemical-Process Operator, Set-Up Man, and Die Setter.

WORK PERFORMED – What would you do as a worker in this field?

As a worker in this field, you would either (1) set up machines, such as looms, lathes, drills, and presses for others to operate; or (2) set up and personally operate a variety of machines. You would plan the step-by-step order of operation, install (put in place), and adjust cutting tools or other parts on the machine, and adjust the position of the material. To do this, you would need to be thoroughly familiar with mechanical principles and technical information, and be skilled in the use of the measuring devices used to put the work in place, adjust the machines, and determine the accuracy of the machine and the work it produces.

WORKER REQUIREMENTS – What qualifications would you need?

To do well in this field you should like to work with machinery. It would also be important for you to (1) pay close attention to detail; (2) see well; (3) understand and use mechanical principles and technical information; (4) use basic mathematics; (5) coordinate the movement of your eyes, hands, and fingers (make them work together) the way your job requires; (6) be physically strong and nimble; and (7) be able to adjust to changing situations.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- success in machine shop courses in high school or vocational (trade) school
- liking to work with machines
- good grades in mathematics and technical subjects in school
- vacation or part-time work experience relating to machines

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

The best way to enter this field is through an apprenticeship program which enables you to earn as you learn. You might start as a helper or machine hand and work your way to more difficult jobs by increasing your skill and accepting greater responsibility. Another method of entry is through supervised on-the-job experience and technical instruction given by machine manufacturers or machine users. You may obtain special skills by taking courses in technical and mechanical subjects.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

1 Performing a variety of duties which may often change.

0 Rating information using standards that can be measured or checked.

Y Working within precise limits or standards of accuracy.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

9 Activities which are nonsocial and involve the use of machines, processes, or methods.

0 Activities which bring personal satisfaction from working on or producing things.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

6 Over 1 year up to and including 2 years.
7 Over 2 years up to and including 4 years
8 Over 4 years up to and including 10 years.

81

Data-Low
People-Low
Things-High

Set Up and Adjustment

Setting up means to prepare a machine to do its job. Adjustment means to make minor changes so that a machine will work better or perform a specific job. Examples of workers in this group are Rope-Machine Set-Up Man, Folding-Machine Set-Up Man, Envelope-Machine Set-Up Man, and Mold Setter.

WORK PERFORMED -- What would you do as a worker in this field?

As a worker in this field you would set up and/or adjust machines which are either fully automatic or operated, attended, or fed by other workers. You would usually work with a battery (group) of machines that are all alike and perform one or a few operations. There would be little day to day change in your work activities since you would be following standard work procedures.

WORK REQUIREMENTS – What qualifications would you need?

In this field, you need an interest in machines and machinery. It is also important for you to (1) be able to use your hands and fingers easily and accurately, (2) see differences in sizes and shapes, (3) accept responsibility for the use and care of machines and materials, and (4) understand and follow instructions and specifications (special standards).

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- success in machine shop courses in school
- liking to read magazines or books about mechanics
- experience working in a machine shop or other machine-related surroundings

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

On-the-job training and advancement from jobs requiring less skill are the common methods of entry into this type of work. A training background in machine shop or machine-related courses in school would help you to prepare for this field of work.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

0 Rating information using standards that can be measured or checked.
Y Working within precise limits or standards of accuracy.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

1 Activities dealing with things and objects.
9 Activities which are nonsocial and involve the use of machines, processes, or methods.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

3 Over 30 days up to and including 3 months.
4 Over 3 months up to and including 6 months.
5 Over 6 months up to and including 1 year.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.			▨		
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.			▨		
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.		▨	▨		
K – MOTOR COORDINATION: ability to coordinate the use of eyes and hands or fingers rapidly and accurately to perform a task.		▨	▨		
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.		▨	▨		
M – MANUAL DEXTERITY: ability to work easily and skillfully with the hands.			▨	▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 3

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: L M 4 6

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .780

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

80 Set Up and/or All-Round Machine Operating
82 Operating - Controlling
83 Driving - Operating
84 Tending

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **433**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

82

Data-Low
People-Low
Things-High

Operating – Controlling

Operating – controlling means to set up, start, adjust, watch, and stop machines and equipment used to process materials or make products. Examples of workers in this group are Duplicating-Machine Operator, Tabulating-Machine Operator, Dry Cleaner, Offset Pressman, Sewing-Machine Operator, Drill-Press Operator, Conveyor-Line Operator, Stationary Engineer, and Sewage-Plant Operator.

WORK PERFORMED – What would you do as a worker in this field?

In this field of work you would probably operate one type of machine. Your work might include selecting and installing (putting in place) tools and holding devices, loading and operating the machine (or watching it operate), and making adjustments as necessary. You would also remove the products, check their measurements for accuracy, and make minor repairs to the machine as needed. You might be required to read blueprints or understand written work orders.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this field require you to (1) understand the technical nature of machines and visualize (see in your mind) how their parts work together; (2) understand the working properties of the materials being processed; (3) use your hands and fingers easily and skillfully; (4) coordinate the movement of your eyes, hands, and feet (make them work together) the way your job requires; and (5) understand and follow written and spoken instructions.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- good eyesight and physical condition
- success in machine shop courses in high school or vocational (trade) school
- interest in operating machines
- liking to work with your hands

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

One way to enter this field is through an apprenticeship program allowing you to earn as you learn. Experience as a machine tender or helper may help, if you show that you have increased your skills and are willing to accept greater responsibility. Some companies offer on-the-job training and technical instruction as a basis for beginning employment or for advancement.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

0 Rating information using standards that can be measured or checked.
Y Working within precise limits or standards of accuracy.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

1 Activities dealing with things and objects.
9 Activities which are nonsocial and involve the use of machines, processes, or methods.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

4 Over 3 months up to and including 6 months.
5 Over 6 months up to and including 1 year.
6 Over 1 year up to and including 2 years.
7 Over 2 years up to and including 4 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.		▨	▨		
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.		▨	▨	▨	
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.		▨	▨	▨	
K – MOTOR COORDINATION: ability to coordinate the use of eyes and hands or fingers rapidly and accurately to perform a task.		▨	▨		
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.		▨	▨		
M – MANUAL DEXTERITY: ability to work easily and skillfully with the hands.		▨	▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **3 4**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **I M H 4**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.782**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

80	Set Up and/or All-Round Machine Operating
108	Motion Picture Projecting, Photographic Machine Work, and Related Activities
23	Typesetting, Reproducing, and Related Machine Work
83	Driving--Operating
84	Tending
51	Feeding--Offbearing
81	Set Up and Adjustment

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **435**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

83

Data-Low
People-Low
Things-High

Driving – Operating

Driving – operating means to control the movement or functions of machines or equipment which must be steered or guided to make, process, or transport materials or products. Examples of workers in this group are Tractor-Trailer Driver, Bulldozer Operator, Dump-Truck Driver, Concrete-Mixing Truck Driver, Asphalt-Paving Machine Operator, Farm-Equipment Operator, and General Farm Hand.

WORK PERFORMED – What would you do as a worker in this field?

Work in this field involves starting, stopping, and moving the controls to steer or guide machines to make, process, or move materials or products. Machines you might operate include farm tractors, trucks, cranes, and machines which pave roads, transport products or materials, hoist (lift) building supplies, or feed ore into furnaces. You would sometimes follow signals given by others to position or move your machine or equipment.

WORKER REQUIREMENTS – What qualifications would you need?

For jobs in this field you need to (1) be able to judge differences in spaces and distances between objects; (2) coordinate the movement of your eyes, hands, and feet (make them work together) to do the job; (3) use your hands easily and accurately; (4) like working with heavy equipment; (5) follow instructions; and (6) adjust to doing the same kind of work day after day.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- much driving experience and an excellent driving record
- military experience driving tanks, trucks, or similar vehicles
- good vision and general physical health
- part-time or summer work experience driving a truck or operating farm equipment

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Courses in heavy equipment handling are available in a few schools for some of the jobs in this field, and many employers provide on-the-job training. The type of job you would do and the kind of machine you would operate depend largely upon your interests and physical abilities.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

2 Repeating activities or tasks of short duration according to a required routine procedure or sequence.
3 Doing things only under specific instructions, allowing little or no room for independent action or judgment in working out job problems.
Y Working within precise limits or standards of accuracy.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

1 Activities dealing with things and objects.
3 Activities of a routine, definite, organized nature.
9 Activities which are nonsocial and involve the use of machines, processes, or methods.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

3 Over 30 days up to and including 3 months.
4 Over 3 months up to and including 6 months.
5 Over 6 months up to and including 1 year.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.		▨	▨		
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.		▨	▨		
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.		▨	▨		
K – MOTOR COORDINATION: ability to coordinate the use of eyes and hands or fingers rapidly and accurately to perform a task.		▨	▨		
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.		▨	▨		
M – MANUAL DEXTERITY: ability to work easily and skillfully with the hands.		▨	▨		
E – EYE-HAND-FOOT COORDINATION: ability to coordinate the movements of the hands and feet according to visual signals and directions.		▨	▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **3 2**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **L M H 2 3 4 6**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.883**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

110	Transportation Service Work
82	Operating--Controlling
39	Manipulating
84	Tending
51	Feeding--Offbearing

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **444**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

84

Data-Low
People-Low
Things-Average

Tending

Tending means to control the operation of a machine by pushing buttons, turning valves, flipping switches, or performing other standard tasks to make it start, operate, and stop as intended. Examples of workers in this group are Die-Casting Machine Operator, Folding-Machine Operator, Mixing-Machine Operator, X-Ray Developing-Machine Operator, and Sewage-Plant Attendant.

WORK PERFORMED – What would you do as a worker in this field?

In this field, you would start, stop, and watch a machine as it makes or processes products and materials. You might change guides which feed the material into the machine, adjust timers and temperature gauges, turn valves, push buttons, flip switches, or make other minor adjustments necessary to keep the machine operating properly. However, you would not be responsible for setting up (preparing) the machine for operation or for making major adjustments or repairs.

WORKER REQUIREMENTS – What qualifications would you need?

For this work you need to (1) enjoy working with machinery and equipment, (2) be able and willing to learn and follow instructions, (3) adjust to doing the same kind of work over and over, and (4) pay close attention to the machine whenever it is operating.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- success in machine shop courses in high school
- liking to work around machinery
- taking part in activities which require good physical condition and alertness, such as football or tennis
- part-time or summer experience working in a machine shop or factory

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Employers usually prefer workers who have had some experience with machines, either in school courses or on a job. On-the-job training is the most common way to obtain the skills necessary for machine tending. Training time might range from a few days to six months, depending on the number and difficulty of the tasks to be learned. As job openings occur, experienced machine tenders often advance to jobs as machine operators.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

2 Repeating activities or tasks of short duration according to a required routine procedure or sequence.
3 Doing things only under specific instructions, allowing little or no room for independent action or judgment in working out job problems.
Y Working within precise limits or standards of accuracy.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

1 Activities dealing with things and objects.
3 Activities of a routine, definite, organized nature.
9 Activities which are nonsocial and involve the use of machines, processes, or methods.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

2 Anything beyond short demonstration up to and including 30 days.
3 Over 30 days up to and including 3 months.
4 Over 3 months up to and including 6 months.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.		▨	▨		
K – MOTOR COORDINATION: ability to coordinate the use of eyes and hands or fingers rapidly and accurately to perform a task		▨	▨		
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.		▨	▨		
M – MANUAL DEXTERITY: ability to work easily and skillfully with the hands.		▨	▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **2 3 1**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **L M H 3 4 6**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.885**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

27	Sorting, Inspecting, Measuring, and Related Work
82	Operating--Controlling
39	Manipulating
51	Feeding--Offbearing
52	Handling
83	Driving--Operating

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **447**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

85

Data-High
People-High
Things-Low

Supervisory Work

Service and Related Activities

Supervisory work, as used here, means to plan and direct the activities of service workers who perform personal duties or tasks, usually for individuals or small groups. Examples of workers in this group include Butler, Head Waiter, Bell Captain, Maintenance Foreman, Caddie Master, and Housekeeper (such as in a hotel or private home).

WORK PERFORMED – What would you do as a worker in this field?

In this field you would supervise the work of people who are responsible for performing personal services. You might be employed in a restaurant or hotel, in a theater, at a golf course, in a laundry, on a ship, or in a private home. You would determine the need for the service you supervise, give a worker an assignment to provide it, and make certain that the person receiving the service is satisfied.

WORKER REQUIREMENTS – What qualifications would you need?

A job in this field requires you to (1) become completely familiar with the service you are supervising, (2) make plans and give directions so that each worker does his or her job promptly and correctly, (3) communicate with those for whom you work and those you supervise, (4) prepare written reports when required, (5) compute (figure out) amounts and costs of supplies, (6) be able to discover errors in written records, (7) persuade and encourage people to work together to serve others effectively, and (8) train new employees when necessary.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- experience in leading group activities such as club bake sales or hiking trips
- experience as a class officer or a committee chairman
- training or volunteer work in some type of service activity
- preference for work that is of direct service to others

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

To prepare for this type of supervisory work you need several years experience in lower level jobs within a particular service area. You also need to convince an employer that you can deal effectively with others.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

1 Performing a variety of duties which may often change.
4 Directing, controlling, and planning an entire activity or activities of others.
5 Dealing with people in actual job duties beyond giving and receiving instructions.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

2 Activities involving business contact with people.
5 Activities which bring recognition or appreciation by others.
9 Activities which are nonsocial and involve the use of machines, processes, or methods.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

6 Over 1 year up to and including 2 years.
7 Over 2 years up to and including 4 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.			▨		
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.			▨		
Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.		▨	▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 4 3

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: S L 5

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .138

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

9	Supervisory Work (Clerical, Sales, and Related Activities)
10	Managerial Work
105	Miscellaneous Personal Service Work (Food Serving, Portering, Valeting, and Related Activities)
93	Child and Adult Care
104	Accommodating Work
103	Miscellaneous Customer Service Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **461**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

86

Data-High
People-High
Things-High

Health Physics

Health physics is a science that deals with protecting workers from radiation and related health hazards (dangers). Radiation, as used here, is the accidental release of dangerous radioactive energy during the use of such energy for research, the discovery or treatment of disease, or as a source of power. Radiation is capable of causing a breakdown of human tissue, resulting in critical illness, disfigurement, or death. The worker in this field is called a Health Physicist.

WORK PERFORMED – What would you do as a worker in this field?

In this field of work, you would plan and direct research, training, and inspection programs to protect plant and laboratory workers from radiation hazards. You would use or supervise the use of special equipment such as counters and detectors to measure radiation levels in the workers' surroundings. You would be responsible for establishing inspection standards, radiation exposure limits, and safe work methods, and for training workers to follow these without exception. You might be called on to advise public authorities, help civil defense planners, or conduct public information programs related to radiation hazards.

WORKER REQUIREMENTS – What qualifications would you need?

Work in this field would require you to (1) gain the necessary background to conduct research and interpret scientific theories and information; (2) pay close and constant attention to details; (3) have a curious mind; (4) be able to see and know the meaning of very small differences in the shapes, sizes, and make-up of things such as blood cells and body tissues; and (5) assemble and organize facts to plan programs of instruction.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- interest in doing research-type work
- taking part in science clubs, exhibits, or fairs
- success in science courses in high school and college
- experience in helping science instructors in their work

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Most employers require a graduate degree in physics, which takes from five to seven years of college preparation, including training in research methods.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

4 Directing, controlling, and planning an entire activity or activities of others.
5 Dealing with people in actual job duties beyond giving and receiving instructions.
0 Rating information using standards that can be measured or checked.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

1 Activities dealing with things and objects.
7 Activities of a scientific and technical nature.
0 Activities which bring personal satisfaction from working on or producing things.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

8 Over 4 years up to and including 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.					▨
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.					▨
N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.				▨	
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.				▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 6

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: S 5 6

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .021

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

75	Materials Analysis and Related Work
87	Scientific Research
90	Medical, Veterinary, and Related Services

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **464**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

86

Data-High
People-High
Things-High

Health Physics

Health physics is a science that deals with protecting workers from radiation and related health hazards (dangers). Radiation, as used here, is the accidental release of dangerous radioactive energy during the use of such energy for research, the discovery or treatment of disease, or as a source of power. Radiation is capable of causing a breakdown of human tissue, resulting in critical illness, disfigurement, or death. The worker in this field is called a Health Physicist.

WORK PERFORMED – What would you do as a worker in this field?

In this field of work, you would plan and direct research, training, and inspection programs to protect plant and laboratory workers from radiation hazards. You would use or supervise the use of special equipment such as counters and detectors to measure radiation levels in the workers' surroundings. You would be responsible for establishing inspection standards, radiation exposure limits, and safe work methods, and for training workers to follow these without exception. You might be called on to advise public authorities, help civil defense planners, or conduct public information programs related to radiation hazards.

WORKER REQUIREMENTS – What qualifications would you need?

Work in this field would require you to (1) gain the necessary background to conduct research and interpret scientific theories and information; (2) pay close and constant attention to details; (3) have a curious mind; (4) be able to see and know the meaning of very small differences in the shapes, sizes, and make-up of things such as blood cells and body tissues; and (5) assemble and organize facts to plan programs of instruction.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- interest in doing research-type work
- taking part in science clubs, exhibits, or fairs
- success in science courses in high school and college
- experience in helping science instructors in their work

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Most employers require a graduate degree in physics, which takes from five to seven years of college preparation, including training in research methods.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

4 Directing, controlling, and planning an entire activity or activities of others.
5 Dealing with people in actual job duties beyond giving and receiving instructions.
0 Rating information using standards that can be measured or checked.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

1 Activities dealing with things and objects.
7 Activities of a scientific and technical nature.
0 Activities which bring personal satisfaction from working on or producing things.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

8 Over 4 years up to and including 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.					▨
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.					▨
N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.				▨	
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.				▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 6

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: S 5 6

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .021

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

75	Materials Analysis and Related Work
87	Scientific Research
90	Medical, Veterinary, and Related Services

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **464**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

87

Data-High
People-Low
Things-High

Scientific Research

Research means using experimental methods to conduct an organized search or investigation to gain new knowledge or to find the solution to complex problems. Scientific research means research in a scientific field such as chemistry or biology. Examples of workers in this group are Chemist, Physicist, Geologist, Oceanographer, Biochemist, Biologist, Zoologist, Pathologist, Agronomist, and Soil Scientist.

WORK PERFORMED – What would you do as a worker in this field?

There are two kinds of research you might do as a worker in this field: (1) **basic research** to increase man's knowledge of the properties of matter and energy and (2) **applied research** to use the knowledge gained through basic research for developing new products or ways of doing things as well as for finding practical solutions to scientific problems. In these types of research you would use principles of chemistry, physics, astronomy, or other fields of science.

WORKER REQUIREMENTS – What qualifications would you need?

To do this kind of work you would need to (1) gain the necessary educational background to understand and interpret scientific theories and information, (2) pay close attention to detail, (3) be able to do mathematical problems easily and accurately, and (4) have a curious mind and a rich imagaination.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- interest in doing experiments and research
- success in science courses in high school or college
- taking part in science clubs or science fairs or similar activities
- experience in helping a science teacher in class or laboratory
- summer or part-time work experience in science-related work

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

To enter this field, you would need at least a college (bachelor's) degree with major study in some area of science. To do teaching or responsible research work, you would probably need a graduate degree (one which follows the bachelor's). A master's degree might qualify you for a job in applied research as a laboratory instructor in a college or university, or for some types of industrial research. For more specialized research or for college or university teaching, you would almost certainly need a doctor of philosophy (Ph.D.) degree.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

1 Performing a variety of duties which may often change.
9 Rating information by using personal judgment.
0 Rating information using standards that can be measured or checked.
Y Working within precise limits or standards of accuracy.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

1 Activities dealing with things and objects.
7 Activities of a scientific and technical nature.
8 Activities of an unusual, indefinite nature which require creative imagination.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

7 Over 2 years up to and including 4 years.
8 Over 4 years up to and including 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	▨
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.				▨	▨
N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.				▨	▨
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.				▨	▨
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.				▨	▨
Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.			▨	▨	▨

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 5 6

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: S L 2 3 4 5 6

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .081

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

75	Materials Analysis and Related Work
44	High School, College, University, and Related Education
86	Health Physics
88	Mathematics, Physical Sciences, and Related Research
73	Technical Work, Science and Related Fields
55	Engineering, Scientific, and Technical Cooodination

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **466**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

88

Data-High
People-Low
Things-Low

Mathematics, Physical Sciences, and Related Research

Research means using experimental methods to conduct an organized search or investigation to gain new knowledge or to find the solution to complex problems. Research in mathematics, the physical sciences, and related areas means to conduct scientific studies related to geography, astronomy, the atmosphere, data-processing systems and programs, or any other theories or systems which involve the use of physics and mathematics. Examples of workers in this group are Engineering Analyst, Mathematician, Actuary, Astonomer, Meteorologist, and Geographer.

WORK PERFORMED – What would you do as a worker in this field?

Depending upon your particular job, you might collect and study information about the nature, make-up, structure, and other features of the earth, its atmosphere, and the celestial bodies (planets, stars, meteorites, etc.) surrounding it. Based on your research findings, you would study or develop theories (new ideas) about time, space, weather, matter and energy, motion of the heavenly bodies, and other characteristics of the physical world. In jobs using data-processing, you would work with computers, stating the problems in the special language used by computers and determining the methods and order which the computer must follow. Other jobs would require you to develop new mathematical and statistical methods, formulas and relationships. In all of these jobs you would communicate your findings through written reports, lectures, technical publications, and other methods of reporting.

WORKER REQUIREMENTS – What qualifications would you need?

This field of work would require you to (1) understand the basic laws of nature and scientific methods of investigation, (2) be creative, (3) be able to use and understand symbols to represent and explain ideas that cannot be shown in any other way, (4) organize your work and ideas, (5) have a good memory for facts, (6) pay close attention to details in information or records, (7) speak and write clearly, (8) be able to see or imagine the paths or positions of moving and nonmoving objects, and (9) be able to understand ideas which are expressed in the form of numbers or mathematical formulas.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- high scores on aptitude tests and in courses in language and mathematics
- interest in working with figures or numbers
- interest in scientific and technical things such as astronomy and computer science
- liking to read scientific literature
- taking part in science clubs, science fairs, or exhibits

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

A bachelor's (four-year) degree in a branch of this field such as mathematics, astronomy, or geography, is the least amount of education accepted for entry employment. For most jobs, you would need a degree beyond the bachelor's such as the master's or doctor's (Ph.D.) A Ph.D. degree is usually required for jobs in astronomy. Workers in pure mathematics seldom require training in a particular field but those in applied mathematics must have knowledge of the specific field in which they work.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

4 Directing, controlling, and planning an entire activity or activities of others.
9 Rating information by using personal judgment.
0 Rating information using standards that can be measured or checked.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

7 Activities of a scientific and technical nature.
8 Activities of an unusual, indefinite nature which require creative imagination.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

7 Over 2 years up to and including 4 years.
8 Over 4 years up to and including 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

APTITUDES	ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY				
	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	▨
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.				▨	▨
N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.				▨	▨
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.				▨	▨
Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.			▨	▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 6 5

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: 5 4 6

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .088 .188

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

87	Scientific Research
44	High School, College, University, and Related Education
55	Engineering, Scientific, and Technical Coordination
75	Materials Analysis and Related Work
73	Technical Work, Science and Related Fields

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **468**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

89

Data-High
People-High
Things-High

Surgery

Surgery is the branch of medical science which treats human disease, injuries, or deformities by performing operations. Examples of workers in this group are Surgeon, Orthopedic Surgeon, and Oral Surgeon.

WORK PERFORMED – What would you do as a worker in this field?

As a surgeon, you would diagnose (determine the nature of) and treat human diseases, injuries, or deformities by using your hands and surgical tools. By examining the patient and studying the results of tests, you would determine the need for surgery, the best operating procedure, and the risk involved to the patient. In performing the operation, you would use scalpels, forceps, clamps, and other surgical instruments. You might specialize in one type of surgery, such as neurosurgery (on the nervous system) or plastic surgery (on damaged or diseased parts of the face or body).

WORKER REQUIREMENTS – What qualifications would you need?

To do well in this field, you would need to (1) obtain a complete knowledge of the basic medical sciences and understand nonmedical subjects such as those in the humanities and social sciences; (2) learn and use the principles and methods of medical science; (3) be able to determine the nature, cause, and expected outcome of an illness or injury, using test information and medical histories; (4) learn and use medical language; (5) be able to judge the position and arrangement of unseen organs, bones, and tissue using X-rays and a knowledge of human anatomy (body structure); (6) be able to see details in body tissues and structure; (7) develop speed and accuracy with your hands and fingers in handling surgical tools; (8) be able to make quick decisions and perform difficult tasks under pressure; and (9) maintain a high level of concentration, alertness, and performance for long periods of time.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- excellent grades in mathematics, science, and language arts courses in high school and college
- scientific interests relating to the health and welfare of people
- hobbies which indicate ability to do precision (very exact) work with your hands
- helping a teacher in a biology laboratory

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Preparation to practice surgery requires eight to nine years of premedical and medical training leading to a doctor of medicine (M.D.) degree, followed by three to six years of advanced training and experience to develop the special skills required in the operating room.

All states and the District of Columbia require doctors to pass an examination and secure a license to practice. In addition, physicians who want to specialize in surgery usually meet additional training and experience requirements set by an examining board.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

5 Dealing with people in actual job duties beyond giving and receiving instructions.
8 Working well under pressure when faced with critical or unexpected situations or when taking necessary risks.
9 Rating information by using personal judgment.
0 Rating information using standards that can be measured or checked.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

4 Activities which involve direct personal contact, to help people or deal with them for other purposes.
5 Activities which bring recognition or appreciation by others.
7 Activities of a scientific and technical nature.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

8 Over 4 years up to and including 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.					▨
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.					▨
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.					▨
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.					▨
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.				▨	▨

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **6**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **S L 4 5 6**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.101**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

87	Scientific Research
75	Materials Analysis and Related Work
90	Medical, Veterinary, and Related Services
92	Nursing, X-Ray, and Related Services

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook,** the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **471**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

90

Data-High
People-High
Things-Low

Medical, Veterinary, and Related Services

Medical services are those tasks which require the use of medical science in treating or preventing human ailments. Veterinary services are those tasks which require the use of medical science in treating animals. Examples of workers in this group are General Practitioner, Dermatologist, Gynecologist, Pediatrician, Psychiatrist, Dentist, Optometrist, Speech Pathologist, and Verterinarian.

WORK PERFORMED – What would you do as a worker in this field?

As a worker in this field, you would use your knowledge of medical science to diagnose (determine the nature of), prevent, and treat human and animal diseases, disorders, and injuries. Your work activities might be general in nature or you might choose to specialize in the treatment of a particular illness such as heart diseases or a particular area of the body such as the eyes, chest, or intestinal tract. (Specialities in surgery are not included in this job group.)

As a worker in this field you would take a medical history of the patient, perform a physical examination, and order such laboratory work as would seem necessary. Diagnosis and treatment of the problem are then based upon the results of these steps. Records (case histories) are kept for each patient treated. Such records often provide clues to later illnesses.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this field require you to (1) have a complete knowledge of most basic medical sciences and understand nonmedical subjects such as those in the humanities and social sciences; (2) be able to determine the nature, cause, and expected outcome of illnesses and injuries, using information from tests, physical examinations, and medical histories; (3) learn and use medical language; (4) be able to judge the position and arrangement of unseen organs, bones, and tissue using X-rays and a knowledge of human and animal anatomy (body structure); (5) be able to understand and use numbers well enough to do well in chemistry, physics, calculus, and other basic subjects; (6) be able to discover and observe the physical evidence of disease or tissue damage; (7) work long and irregular hours when necessary; and (8) develop speed and accuracy with your hands and fingers to perform examinations, give shots, or conduct autopsies (medical examinations of dead bodies to determine the cause of death).

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- excellent grades in laboratory science, mathematics, and language arts in high school and college
- interest in scientific things as shown by reading habits, club memberships, and hobbies
- helping a teacher in a biology or zoology laboratory
- interest in the health and welfare of other people

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Preparation for a medical degree requires three or four years of pre-medical college study, followed by four years of medical training and one year of internship (hospital practice). To become a specialist in any of the 32 fields recognized by the medical profession, you would need an additional four to six years of advanced hospital training and experience.

To be a veterinarian or dentist, you need two to three years of pre-veterinary or pre-dental college work, followed by four years of study in a school of veterinary medicine or dentistry.

All states and the District of Columbia require doctors of medicine, veterinary medicine, and dentistry to pass examinations to be licensed to practice.

In addition to working for themselves in private practice, workers in this group may find jobs with the federal, state, and local government; the military service; and the U. S. Public Health Service. There are full or part-time teaching and research positions available in colleges, government agencies, and private foundations. These positions are usually filled by those workers who have advanced training and experience, particularly in the various medical specialities.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

5 Dealing with people in actual job duties beyond giving and receiving instructions.
9 Rating information by using personal judgment.
0 Rating information using standards that can be measured or checked.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

4 Activities which involve direct personal contact, to help people or deal with them for other purposes.
5 Activities which bring recognition or appreciation by others.
7 Activities of a scientific and technical nature.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

7 Over 2 years up to and including 4 years.
8 Over 4 years up to and including 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.					▨
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.				▨	▨
N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.				▨	▨
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.				▨	▨
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.				▨	▨
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.				▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 5 6

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: S L 4 5 6

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): 108

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

87	Scientific Research
75	Materials Analysis and Related Work
107	Animal Care
93	Child and Adult Care
86	Health Physics
92	Nursing, X-Ray, and Related Services
89	Surgery

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **473**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

91

Data-High
People-High
Things-Low

Therapeutic and Related Work

Therapeutic work, as used here, means to help physically or mentally ill or handicapped people, or those recovering from an injury, to become rehabilitated (restored to a more normal condition). Examples of workers in this group are Music Therapist, Occupational Therapist, Recreational Therapist, and Orientation Therapist for the Blind.

WORK PERFORMED – What would you do as a worker in this field?

As a therapist you would work with people who are mentally or physically ill or handicapped, or are recovering from an injury. Your work would involve planning, organizing, directing, and taking part in programs designed to help the individual regain lost abilities or gain new ones which might help him to function at a more normal level. These programs might be recreational, educational, vocational, or social in nature.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this field require you to (1) understand such subjects as psychology, anatomy, and physiology, as well as to develop appropriate skills in arts and crafts; (2) apply your knowledge and skills to the needs of individual patients; (3) plan and direct activities of individuals or groups and judge the effects of these activities in relation to the changing needs of patients; (4) be able to understand the problems of physically disabled and mentally ill people and get along well with them; (5) use necessary craft or artistic skills when instructing others or showing them how to do things.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- experience in teaching or directing arts and crafts or sports activities at a playground, summer camp, or recreation center
- interest in the physical and social welfare of people
- volunteer work experience with crippled children or elderly people

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Entry into this type of work usually requires graduation from a college or university offering approved courses in therapeutic specialties. In some states you would be required to pass an examination to be certified (legally and professionally recognized to work in this field). Advanced training related to special disabilities, such as cerebral palsy, is offered by a few colleges and health agencies. Most positions in this field are found in hospitals, sanatoriums, and homes for the aged. Additional opportunities occur in special workshops or rehabilitation centers.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

4 Directing, controlling, and planning an entire activity or activities of others.

5 Dealing with people in actual job duties beyond giving and receiving instructions.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

4 Activities which involve direct personal contact, to help people or deal with them for other purposes.

6 Activities concerned with people and the communication of ideas.

7 Activities of a scientific and technical nature.

8 Activities of an unusual, indefinite nature which require creative imagination.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

6 Over 1 year up to and including 2 years.

7 Over 2 years up to and including 4 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	**10%**	**23%**	**34%**	**23%**	**10%**
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.				▨	
K – MOTOR COORDINATION: ability to coordinate the use of eyes and hands or fingers rapidly and accurately to perform a task.			▨	▨	
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.			▨	▨	
M – MANUAL DEXTERITY: ability to work easily and skillfully with the hands.			▨	▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 4 5

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: L 4 5

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .128 .228

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

44	High School, College, University, and Related Education
45	Kindergarten, Elementary School, and Related Education
47	Physical Education
42	Vocational Education
92	Nursing, X-Ray, and Related Services
93	Child and Adult Care
1	Instructive Work, Fine Arts, Theater, Music, and Related Fields

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **475.** Volume I of the DOT lists these jobs in alphabetical order and gives further information.

92

Data-Average
People-Average
Things-Low

Nursing, X-Ray, and Related Services

Nursing, X-Ray, and related services involve tasks related to the examination and care or treatment of people who are ill, injured, or handicapped. Examples of workers in this group are Audiometrist; Physical Therapist; Inhalation Therapist; Medical Assistant; Dental Hygienist; Dental Assistant; and General Duty, Private Duty, and Office Nurses.

WORK PERFORMED – What would you do as a worker in this field?

In this field you might (1) care for the sick and injured; (2) help prevent illness and promote good health; (3) use X-ray and other medical-laboratory equipment for the discovery and treatment of illnesses; and (4) help people to overcome muscle, nerve, joint, or bone injuries or diseases through physical exercise, and the use of machines, massage, heat, cold, light, water, sound waves, or electricity. Most of your work would be performed under the direction and on the instructions of a doctor or a dentist.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this field require you to (1) have technical training; (2) get along well with people and be interested in their welfare; (3) be exact and accurate in preparing medicine, giving treatments, keeping charts, or doing other assigned tasks; (4) be alert to the changing needs of patients; (5) use your fingers easily and skillfully; and (6) coordinate the movements of your eyes and hands (make them work together) as the job demands. You also need to be neat and clean at all times, in good health, and free from contagious (easily transferred) disease.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- good grades in such subjects as chemistry, biology, mathematics, and physiology
- experience in the medical corps of a branch of military service
- successful completion of first aid courses sponsored by such local organizations as the Red Cross, police or firefighters, or Y.M.C.A.
- experience as a volunteer worker in a hospital, rest home, or similar setting

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

There are three types of training programs offering the preparation required for professional nursing. First, there are three-year programs conducted by hospital schools which result in a nursing diploma. Second, there are college programs which lead to a bachelor's degree in nursing and take four or five years to complete. Third, there are programs, usually conducted by junior or community colleges, that offer an associate degree in nursing and last about two years. All of these training programs include supervised nursing practice.

Training programs approved by the Council of Medical Education and Hospitals of the American Medical Association are the most widely accepted courses of study and methods of entry into X-ray technology. These programs are run by hospitals or by medical schools connected with hospitals.

A number of jobs in this field, such as Physical Therapist, Inhalation Therapist, and Dental Hygienist require highly specialized training programs which are offered in specialized schools which may be attached to colleges of medicine or dentistry.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

5 Dealing with people in actual job duties beyond giving and receiving instructions.
Y Working within precise limits or standards of accuracy.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

4 Activities which involve direct personal contact, to help people or deal with them for other purposes.
7 Activities of a scientific and technical nature.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

6 Over 1 year up to and including 2 years.
7 Over 2 years up to and including 4 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.			▨	▨	
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.			▨	▨	
N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.			▨		
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.			▨	▨	
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.			▨	▨	
Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.			▨	▨	
K – MOTOR COORDINATION: ability to coordinate the use of eyes and hands or fingers rapidly and accurately to perform a task.			▨	▨	
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.			▨	▨	
M – MANUAL DEXTERITY: ability to work easily and skillfully with the hands.			▨	▨	

Other information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 4

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: L M 4 6

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .368 .378

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

90	Medical, Veterinary, and Related Services
75	Materials Analysis and Related Work
93	Child and Adult Care
91	Therapeutic and Related Work
40	Supervisory and Instructive Work (Nursing and Related Services)

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page 477. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

93

Data-Low
People-Average
Things-Low

Child and Adult Care

Child and adult care is similar to nursing in that it means taking care of people who are partially or totally unable to care for themselves. However, unlike nursing, it does not require highly technical training. Examples of workers in this group are First Aid Attendant, Practical Nurse (non-licensed), Ambulance Attendant, Nurse Aid, Orderly, Psychiatric Aid, and Nursery School Teacher. (Practical Nurses who have been licensed by the state are included in group 92, Nursing, X-Ray, and Related Services.)

WORK PERFORMED – What would you do as a worker in this field?

Your work in this field would involve helping people who are partially or totally unable to do things for themselves. You might help them to feed or clothe themselves, or to do such things as walking or bathing. The individuals you help would usually be children in private homes or institutions, or adults in hospitals, nursing homes, or similar institutions. Your main responsibility would be for their health, safety, comfort, and cleanliness.

WORKER REQUIREMENTS – What qualifications would you need?

To do well in this field you would need to (1) be patient and understanding of the needs of others; (2) get along well with people; (3) be able to remain calm and work well under pressure; and (4) coordinate the movements of your hands, fingers, feet, and legs (make them work together). You would need to be neat, clean, and healthy (free from any illness that can be transferred to others).

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- successful completion of first aid courses given by such local organizations as the Red Cross, police, fire fighters, or Y.M.C.A.
- babysitting experience
- experience in the medical corps of a branch of military service
- volunteer work caring for shut-ins in hospitals or rest homes
- good medical record
- a pleasant and confident attitude while working with people

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

To enter this field you need to be familiar with the basic techniques of first aid, health care, and other activities involved in the care of children, elderly people, or those who are invalids or ill. Most training is in the form of instruction at time of employment, which may include on-the-job training and observing others perform the work.

Background for this field might include experience in babysitting or doing domestic work, such as cooking or house cleaning. Some schools or agencies offer short courses in child care and related services.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

5 Dealing with people in actual job duties beyond giving and receiving instructions.
8 Working well under pressure when faced with critical or unexpected situations or when taking necessary risks.
9 Rating information by using personal judgment.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

2 Activities involving business contact with people.
4 Activities which involve direct personal contact, to help people or deal with them for other purposes.
9 Activities which are nonsocial and involve the use of machines, processes, or methods.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

2 Anything beyond short demonstration up to and including 30 days.
3 Over 30 days up to and including 3 months.
4 Over 3 months up to and including 6 months.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.		▨	▨		
Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.		▨	▨		
K – MOTOR COORDINATION: ability to coordinate the use of eyes and hands or fingers rapidly and accurately to perform a task.		▨	▨		
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.		▨	▨		
M – MANUAL DEXTERITY: ability to work easily and skillfully with the hands.		▨	▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **3**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **L M 4 5**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.878**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

107	Animal Care
105	Miscellaneous Personal Service Work (Food Serving, Portering, Valeting, and Related Activities)
92	Nursing, X-Ray, and Related Services
91	Therapeutic and Related Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **479**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

94

Data-High
People-Average
Things-Low

Promotion and Publicity

Promotion and publicity work means to make something (a product, a person, an idea, or an organization) better known and more acceptable to others. Examples of workers in this group are Advertising Assistant, Public-Relations Man, and Direct-Mail Specialist.

WORK PERFORMED – What would you do as a worker in this field?

Your work in this area would involve planning, directing, and carrying out advertising and public relations programs designed to help sell products or services, to create good will, or to establish a favorable public image. Some of your specific duties might be to write scripts for radio and television advertisements, plan newspaper or magazine advertisements, write speeches either for yourself or others, advise dealers and distributors on sales techniques, or arrange for community relations events.

WORKER REQUIREMENTS – What qualifications would you need?

In this field of work you would have to (1) understand and apply the principles and methods of advertising, publicity, and consumer and market research (studying problems related to buying and selling); (2) communicate your ideas clearly and effectively in both speaking and writing; (3) be able to organize facts in order to plan and direct both surveys and publicity campaigns; (4) use imagination to develop workable solutions to unusual problems; (5) take on responsibility and make decisions; (6) deal with problems that may take a long time to solve; and (7) persuade people that your product or service is better than that offered by others.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- taking active part in school activities
- being an outgoing person
- summer or part-time sales experience
- organizing and directing ticket sales or other school campaigns or club activities

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Although most employers prefer to hire individuals who have a liberal arts college background, there are some opportunities in promotion and publicity work for individuals with a high school education and outstanding personal qualities such as appearance and the ability to direct others, and to write and speak effectively. Experience in retail sales or journalism, and night school or correspondence courses in English, history, psychology, sociology, advertising, and economics are of great help to those who don't have a college education.

Entry into this field, with or without a college background, would depend a great deal upon your ability to convince an employer of your skills. Small manufacturers, dealers, and agencies often provide an opportunity for beginners to gain experience and find their special interest. Competition among beginners is especially keen, but there are excellent advancement opportunities for those who show special ability.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

4 Directing, controlling, and planning an entire activity or activities of others.
5 Dealing with people in actual job duties beyond giving and receiving instructions.
7 Influencing people's opinions, attitudes, or judgments about ideas or things.
9 Rating information by using personal judgment.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

2 Activities involving business contact with people.
5 Activities which bring recognition or appreciation by others.
6 Activities concerned with people and the communication of ideas.
8 Activities of an unusual, indefinite nature which require creative imagination.

SPECIFIC VOCATIONAL PREPARATION -- Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

7 Over 2 years up to and including 4 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

	ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY				
	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	▨
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.				▨	▨

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 5

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: S L 5

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .068

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

112	Creative Writing
111	Journalism and Editorial Work
6	Administration
95	Purchase and Sales Work
31	Social Science, Psychological, and Related Research

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **482**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

95

Data-High
People-Average
Things-Low

Purchase and Sales Work

Purchase and sales work, as used here, means buying and selling materials or products for a profit. Examples of workers in this group are Broker, Buyer, Purchasing Agent, and Pawnbroker.

WORK PERFORMED – What would you do as a worker in this field?

As a worker in this field, you would use your knowledge of contracts, credit, marketing, and selling methods to buy and/or sell materials or products. You might need a technical knowledge of the materials or products involved. Usually you would examine the goods, estimate their value, determine the markup (increase of sale price over purchase price) necessary for a reasonable profit, and buy the goods for resale if you think the purchase is wise. You might work for yourself, for a store or company, or for a group or chain of stores.

WORKER REQUIREMENTS – What qualifications would you need?

To do well in this field you must (1) be able to learn and apply a knowledge of contracts, credit, marketing conditions, and buying and selling methods; (2) be able to get along and communicate with all types of people; (3) be a good salesman; (4) be able to use words skillfully; (5) have mathematical ability; (6) have a desire to succeed and be willing to work hard without close direction.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- experience selling tickets for school activities
- experience selling advertisements for your school yearbook or newspaper
- volunteer work collecting for charities
- enjoyment in meeting and talking with people
- a good appearance and a pleasant personality

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Some employers require either a college background or night school or community college courses in business administration, marketing, and related fields. Most large organizations have on-the-job and classroom training programs which are designed to help new employees. Workers often start at a lower level in an organization and work their way up to buying and selling jobs through learning and experience.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

5 Dealing with people in actual job duties beyond giving and receiving instructions.
7 Influencing people's opinions, attitudes, or judgments about ideas or things.
9 Rating information by using personal judgment.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

2 Activities involving business contact with people.
5 Activities which bring recognition or appreciation by others.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

5 Over 6 months up to and including 1 year.
6 Over 1 year up to and including 2 years.
7 Over 2 years up to and including 4 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.				▨	
N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.			▨	▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **4 5**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **L 5**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.158 .168**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

54	Sales Engineering
97	Demonstration and Sales Work
99	Selling and Related Work
7	Contract Negotiating and Related Work
96	Sales and Service Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **484**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

96

Data-High
People-Average
Things-High

Sales and Service Work

Sales and service work, as used here, means to sell products and maintain them (keep them in working order) through the use of specialized skills and knowledge. Examples of workers in this group are Service Engineer, Dispensing Optician, and Electronic Sales-and-Service Technician.

WORK PERFORMED – What would you do as a worker in this field?

In this work group, you would sell, install (put in place), and repair machines, equipment, and similar products. This work would be different from ordinary selling in that you would have to know how the product was put together as well as its function, since you would also provide the customer with repair or adjustment services whenever necessary.

WORKER REQUIREMENTS – What qualifications would you need?

This kind of job would require you to (1) communicate with different types of people; (2) figure out and estimate costs; (3) be able to judge accurately how much space would be needed to install and use the equipment; (4) understand and use technical information to solve mechanical problems; (5) get along well with your customers and be able to persuade them to your point of view; and (6) use your fingers and hands easily and accurately.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- repairing electrical appliances as a hobby
- selling magazine subscriptions
- good grades in technical and vocational (trade) courses in high school

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

To get started into this kind of work, you would usually be required to have a high school education. Some employers would prefer that you have a technical or vocational school background. As an entry worker, you might go through special training courses and a period of on-the-job training.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

5 Dealing with people in actual job duties beyond giving and receiving instructions.
7 Influencing people's opinions, attitudes, or judgments about ideas or things.
9 Rating information by using personal judgment.
0 Rating information using standards that can be measured or checked.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

2 Activities involving business contact with people.
7 Activities of a scientific and technical nature.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

5 Over 6 months up to and including 1 year.
6 Over 1 year up to and including 2 years.
7 Over 2 years up to and including 4 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.			▨		
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.			▨		
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.			▨		
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.			▨		
M – MANUAL DEXTERITY: ability to work easily and skillfully with the hands.			▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **4**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **M 3 4 5 6**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.251**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

54	Sales Engineering
99	Selling and Related Work
95	Purchase and Sales Work
98	Delivery and Service Work, N.E.C.

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **486**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

97

Data-Average
People-Average
Things-Low

Demonstration and Sales Work

Demonstration, as used here, means to show others how something should function or how it can be used. Sales work means to persuade someone to buy what you are selling. Examples of workers in this group are Life Underwriter; General Salesperson; Auctioneer; and Insurance, House-to-House, and Radio and Television Time Salesmen.

WORK PERFORMED – What would you do as a worker in this field?

In this field your main duties would be to sell and/or demonstrate materials, products, or services. To do this, you would use your knowledge of the items to be sold or demonstrated, together with methods of persuasion. You might work in retail or wholesale business settings, by telephone, or by going from door-to-door. You might also make definite appointments before visiting the customers. Demonstration of products or services might be a part of your sales approach or you might work as a demonstrator without being responsible for selling.

WORKER REQUIREMENTS – What qualifications would you need?

To do well in this field, you would have to (1) be able to speak clearly and with a good vocabulary; (2) have a complete knowledge of the objects, materials, or services involved; (3) be able to use numbers easily; (4) keep detailed records accurately; (5) be able to start and complete work assignments on your own; (6) be skillful and considerate in dealing with people; and (7) be able to persuade others to buy your product or service.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- experience in selling things such as magazine subscriptions
- ability to appear at ease in front of others
- good speaking vocabulary
- careful grooming

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Employers usually require at least a high school education. Some employers prefer you to have a college background or night school training. The best preparation at the college level would be coursework in business administration, marketing, and related subjects. Many larger organizations offer training programs which are designed to develop your sales or demonstration skills.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

5 Dealing with people in actual job duties beyond giving and receiving instructions.
7 Influencing people's opinions, attitudes, or judgments about ideas or things.
9 Rating information by using personal judgment.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

2 Activities involving business contact with people.
6 Activities concerned with people and the communication of ideas.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

2 Anything beyond short demonstration up to and including 30 days.
3 Over 30 days up to and including 3 months.
4 Over 3 months up to and including 6 months.
5 Over 6 months up to and including 1 year.
6 Over 1 year up to and including 2 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.			▨	▨	
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.			▨	▨	
N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.		▨	▨		
Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.		▨	▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 4 5

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: L

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .258 .358 .458

RELATED GROUPS OF JOBS – Other groups of related jobs described in this publication are

54	Sales Engineering
95	Purchase and Sales Work
99	Selling and Related Work
96	Sales and Service Work
98	Delivery and Service Work, N.E.C.

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **488**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

98

Data-Average
People-Low
Things-High

Delivery and Service Work, N.E.C.

Delivery and service work, as used here, means delivering products and/or collecting money on a regular service basis. N.E.C. (Not Elsewhere Classified) means that these jobs are not included in any other worker group. Examples of workers in this group are Newsdealer Delivery Man and Coin-Vending-Machine Collector.

WORK PERFORMED – What would you do as a worker in this field?

As a worker in this group you would drive a car or truck over an assigned route to provide special services to different places of business. Your work might be concerned with servicing vending machines by traveling to their various locations and refilling them with supplies, such as candy, coffee, or sandwiches. Or you might pick up newspapers at the printers and take them to newsstands and other places which sell them. In both cases, you would collect money, either from a machine or a newsdealer, and keep records of these collections and the number of supplies or newspapers delivered.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this area of work would require you to (1) drive a vehicle, (2) be able to use arithmetic quickly and accurately, (3) adjust to doing the same kind of work over and over, (4) maintain your physical strength and have no physical handicaps which would slow down your reactions, and (5) see and hear well..

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- experience delivering newspapers on a route
- experience driving a delivery truck as part-time work
- liking work that involves driving a car or truck

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

In most states, you would be required to have a chauffeur's license, which is a permit to drive vehicles used for business. Most employers seek workers with a high school diploma, and who are 25 years of age or older. Chances for employment in this field are better if you have successfully completed a driver training course and have a driving record free from traffic violations.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

2 Repeating activities or tasks of short duration according to a required routine procedure or sequence.

3 Doing things only under specific instructions, allowing little or no room for independent action or judgment in working out job problems.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

1 Activities dealing with things and objects.

0 Activities which bring personal satisfaction from working on or producing things.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

3 Over 30 days up to and including 3 months.

4 Over 3 months up to and including 6 months.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.			▨		
N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.			▨		
Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.			▨		
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.		▨			
E – EYE-HAND-FOOT COORDINATION: ability to coordinate the movements of the hands and feet according to visual signals and directions.			▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **3**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **M 3 4 6**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.383 .483**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

77	Transporting and Test Driving
83	Driving – Operating
110	Transportation Service Work
102	Customer Service Work, N.E.C.

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **491**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

99

Data-Low
People-Average
Things-Low

Selling and Related Work

Selling and related work, as used here, means attracting the attention of people in order to get them to buy tickets to a ride or other form of amusement, or to purchase something such as a newspaper or cold drink. Examples of workers in this group are Street Photographer, Newsboy, Peddler, Vendor, Cigarette Girl, and Concession Attendant.

WORK PERFORMED – What would you do as a worker in this field?

As a worker in this field, you would try to get people to take part in games or other types of entertainment, or you might try to sell them such things as cigarettes, beverages, food, photographs, or newspapers. You might attract their attention by shouting out the nature of your attraction or product, or by wearing an unusual costume. Most work of this type is done at places of entertainment, such as night clubs, amusement parks, and stadiums, but may take place on public streets or sidewalks.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this field require you to (1) be persuasive, (2) talk skillfully, (3) draw attention to yourself and not be embarrassed, and (4) think quickly and adjust to different people or situations.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- experience in amateur (nonprofessional) acting groups
- confidence in yourself
- selling newspapers
- getting contributions for school events

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Work experience in jobs of a similar nature, such as another kind of selling, serves as an excellent background for entry into this work. Often, beginning workers are given the opportunity to learn their trade in jobs requiring a lesser amount of skill and responsibility. As part of their training they help an experienced worker by doing simpler tasks. By being exposed to the selling situation, they gradually learn the techniques involved. Those who enter this field must be persuasive and willing to work hard.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

5 Dealing with people in actual job duties beyond giving and receiving instructions.
7 Influencing people's opinions, attitudes, or judgments about ideas or things.
9 Rating information by using personal judgment.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

1 Activities dealing with things and objects.
2 Activities involving business contact with people.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

2 Anything beyond short demonstration up to and including 30 days.
3 Over 30 days up to and including 3 months.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

	ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY				
	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.			▨		
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.			▨		
N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.			▨		
K – MOTOR COORDINATION: ability to coordinate the use of eyes and hands or fingers rapidly and accurately to perform a task.		▨	▨		
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.		▨	▨		
M – MANUAL DEXTERITY: ability to work easily and skillfully with the hands.		▨	▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **3**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **L 4 5 6**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.858**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

95	Purchase and Sales Work
97	Demonstration and Sales Work
102	Customer Service Work, N.E.C.

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **493**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

100

Data-High
People-Low
Things-Low

Musical Work, Creative

Creative musical work means to compose (write) original music and/or arrange music (change it from one form to another). Examples of workers in this group are Arranger, Composer, and Orchestrator.

WORK PERFORMED – What would you do as a worker in this field?

In this field you would compose and arrange music to be sung, or played by instruments. Typically, you would create melodies, harmonies, and rhythms. This would involve writing down the music and how it should be played, by using notes and other symbols on music paper. You might take music written or prepared for one purpose or instrument and rewrite it for another use (for example, arranging an organ selection for guitar or changing a piece of classical music so it can be played as jazz.)

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this field require you to (1) be able to gain the necessary musical training and apply what you have learned, (2) have a creative imagination and be able to appreciate beauty in music, (3) be able to use words skillfully when they are a part of your musical composition, (4) be able to read musical symbols, (5) remember tones, (6) maintain a feeling for rhythm and melody, and (7) hear well.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- good grades in music courses
- ability to play one or more musical instruments
- hobbies such as record collecting or attending concerts
- interest in other art forms, such as painting or literature

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

The necessary musical training for this field can be gained through private or group lessons from accomplished musicians, through courses offered by colleges or universities, or through conservatories of music (schools of advanced music study). Universities and conservatories usually offer four-year programs leading to a bachelor's degree in music. With few exceptions, people in this field prepare themselves with musical training before they begin serious composing and arranging.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

9 Rating information by using personal judgment.
X Interpreting feelings, ideas, or facts from a personal point of view.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

6 Activities concerned with people and the communication of ideas.
8 Activities of an unusual, indefinite nature which require creative imagaination.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

8 Over 4 years up to and including 10 years.
9 Over 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.					▨
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.				▨	
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.				▨	
E – EYE-HAND-FOOT COORDINATION: ability to coordinate the movements of the hands and feet according to visual signals and directions.	▨	▨	▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 6

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: S 4 5 6

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .088

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

64	Musical Work, Instrumental
65	Musical Work, Vocal
1	Instructive Work, Fine Arts, Theater, Music, and Related Fields
66	Rhythmics

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **496**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

101

Data-High
People-Average
Things-High

Beautician and Barbering Services

Beautician services are those services mainly concerned with improving the personal appearance of women. Barbering services are those services mainly concerned with improving the personal appearance of men. Examples of workers in this group are Barber, Cosmetologist (Beautician), Make-Up Man, and Electrologist.

WORK PERFORMED – What would you do as a worker in this field?

As a worker in this field, you would offer people a variety of services designed to help or improve their personal appearance. **Beautician services** include giving permanents; cutting, styling, shampooing, setting, and dyeing hair; giving manicures and scalp, facial, and body treatments; giving patrons (customers) advice on make-up; removing unwanted hair; and caring for wigs. **Barbering services** include cutting hair; giving shaves, hair and scalp treatments, shampoos, and facial massages; and fitting and caring for hair pieces.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this area of work require you to (1) understand, learn, and apply the different methods of barbering and cosmetology (beautician work), (2) be creative in thinking up or changing styles to suit each customer, (3) get along well with all types of people, (4) be able to see small differences in colors and shapes, (5) coordinate the movement of your eyes and hands (make them work together) as each task requires, and (6) use your fingers quickly and accurately.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- training in vocational (trade) school
- willingness to serve others
- willingness to wear a uniform
- skill in cutting or fixing hair for friends or family
- practice in washing, setting, and arranging your own hair

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

You may obtain barber or beautician training in many public vocational schools and private barber colleges. Courses are generally for one year but may take up to two years to complete, and may include practice under the direction of an experienced worker. Almost every state requires a license or certificate issued by a state board in charge of barbers and beauticians. Licensing requirements may differ from one state to another. Approval to practice is gained after a candidate passes a state examination. Many states have apprenticeship programs which lead to licenses for those who complete the program successfully.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

5 Dealing with people in actual job duties beyond giving and receiving instructions.
9 Rating information by using personal judgment.
X Interpreting feelings, ideas, or facts from a personal point of view.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

2 Activities involving business contact with people.
8 Activities of an unusual, indefinite nature which require creative imagaination.
9 Activities which are nonsocial and involve the use of machines, processes, or methods.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

3 Over 30 days up to and including 3 months.
4 Over 3 months up to and including 6 months.
5 Over 6 months up to and including 1 year.
6 Over 1 year up to and including 2 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.			▨		
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.			▨	▨	
K – MOTOR COORDINATION: ability to coordinate the use of eyes and hands or fingers rapidly and accurately to perform a task.			▨	▨	
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.			▨	▨	
C – COLOR DISCRIMINATION: ability to recognize likenesses and differences in colors and shades, to identify or match specific colors, and to select color combinations which go well together.			▨	▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **4 3**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **L 4 5 6**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.271 .371**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

103	Miscellaneous Customer Service Work
93	Child and Adult Care
105	Miscellaneous Personal Service Work (Food Serving, Portering, Valeting, and Related Activities)

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **499**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

102

Data-Average
People-Average
Things-Low

Customer Service Work, N.E.C.

Customer service work means to help customers by providing such services as information, sales, lay-away, rental, and delivery. N.E.C. (Not Elsewhere Classified) means that these jobs are not included in any other worker group. Examples of jobs in this group are Lay-Away Clerk, Tool-Rental Clerk, Sales Clerk, Car-Rental Clerk, and Delivery Boy.

WORK PERFORMED – What would you do as a worker in this field?

Work in this field includes a variety of services to customers. You might assist them in renting such things as cars or tools, which would involve filling out the proper forms for customers to sign, collecting payments, and keeping records of the items rented. You might sell things such as magazines, tobacco, books, or groceries, which would involve collecting money, wrapping or bagging purchases, keeping records of sales, and restocking shelves. Laying away merchandise would involve filling out forms, collecting payments, reminding customers of overdue payments, keeping records, and storing merchandise. Delivery work might involve some selling and record keeping in addition to delivering purchases to the customer. In any of these jobs you might be required to provide customers with simple information such as prices and time of delivery.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this group require you to (1) understand and carry out the requests of customers; (2) use simple arithmetic, such as when adding up costs or returning change; (3) keep simple records accurately; (4) be patient and courteous (polite) when dealing with the public; and (5) be willing to perform in a service role, waiting on people and assisting them in meeting their needs.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- experience as hat and coat checker at high school dances
- experience as part-time salesman
- liking to help people
- part-time experience as a clerk in a dry-cleaning store, grocery, or department store

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Training for jobs of this kind need not be long or involved. A demonstration of how to do the job and a short period of on-the-job practice is usually enough. In most cases, employers prefer workers with a high school education, including enough arithmetic for simple record-keeping.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

2 Repeating activities or tasks of short duration according to a required routine procedure or sequence.
3 Doing things only under specific instructions, allowing little or no room for independent action or judgment in working out job problems.
5 Dealing with people in actual job duties beyond giving and receiving instructions.
Y Working within precise limits or standards of accuracy.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

2 Activities involving business contact with people.
3 Activities of a routine, definite, organized nature.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

2 Anything beyond short demonstration up to and including 30 days.
3 Over 30 days up to and including 3 months.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.		▨	▨		
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.		▨	▨		
N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.			▨		
Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.		▨	▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **3 2**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **L 4 5**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.468 .478**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

22	Inspecting and Stock Checking
26	Computing and Related Recording
21	Cashiering (Drug Stores, Theaters, Restaurants, and Related Establishments)
103	Miscellaneous Customer Service Work
105	Miscellaneous Personal Service Work (Food Serving, Portering, Valeting, and Related Activities)

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **501.** Volume I of the DOT lists these jobs in alphabetical order and gives further information.

103

Data-Low
People-Average
Things-Average

Miscellaneous Customer Service Work

Miscellaneous customer service work means using hand tools or operating equipment to provide services or products to customers. Examples of workers in this group are Automobile-Service-Station Attendant, Launderette Attendant, Private Chauffeur, Boat-Dock Operator, and Ride Operator.

WORK PERFORMED – What would you do as a worker in this field?

In this group you would provide customers with requested products or services. You would usually use hand tools, equipment, or your hands, arms, and legs to provide these services. Work activities in this group might include servicing customers' cars at service stations, helping customers to wash and dry their clothes at a coin laundry, driving a car for a private owner, attending to privately owned boats, and operating amusement rides for customers. This work might involve collecting money or tickets and making change.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this group would require you to (1) be courteous (polite) and tactful (thoughtful) in dealing with people, (2) use your hands and fingers quickly and accurately, (3) coordinate the movement of your eyes and hands (make them work together) as the task requires, and (4) be in good physical condition.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- part-time experience working in a gas station
- being familiar with amusement park rides
- being in good physical condition

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Because of the varied nature of these jobs, there can be no set program for training and entry into this field. An employer would probably look very closely at your personal characteristics, particularly your dependability. Because there is seldom a formal training program, a beginner usually works with experienced workers for a period lasting from several days through a few months.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

2 Repeating activities or tasks of short duration according to a required routine procedure or sequence.

5 Dealing with people in actual job duties beyond giving and receiving instructions.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

2 Activities involving business contact with people.

3 Activities of a routine, definite, organized nature.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

3 Over 30 days up to and including 3 months.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
K – MOTOR COORDINATION: ability to coordinate the use of eyes and hands or fingers rapidly and accurately to perform a task.		▨	▨		
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.		▨	▨		
M – MANUAL DEXTERITY: ability to work easily and skillfully with the hands.		▨	▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **2 3**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **M H 4 5**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.863 .864 .865 .867**
.873 .874 .877

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

102	Customer Service Work, N.E.C.
104	Accommodating Work
106	Ushering, Messenger Service, and Related Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **503**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

104

Data-Low
People-Average
Things-Low

Accommodating Work

Accommodating work means to provide a service to customers that would help make them comfortable during leisure activities. Examples of workers in this group are Restaurant or Coffee Shop Hostess, Chaperon, Escort, and Hunting and Fishing Guide.

WORK PERFORMED – What would you do as a worker in this field?

Your work in this group would mainly involve providing others with social or personal services to increase their pleasure and comfort. You might be responsible for seating customers in a restaurant or hotel dining room or for greeting guests at such social functions as dances. You might act as an escort (accompany someone to an event), serve as a guide for hunting and fishing trips, chaperon (be in charge of) a group of young people, or arrange for others to participate in social events.

WORKER REQUIREMENTS – What qualifications would you need?

To do well in this field, you need to (1) have a pleasant personality, (2) be able to speak well, (3) dress neatly, (4) appear at ease and put others at their ease, and (5) have good manners.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- helping with neighborhood or church social functions
- liking to work with people and help make them feel comfortable
- pleasant personality and neat appearance
- hunting or fishing as a hobby

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Most employers prefer to hire individuals who have a high school education. However, they would consider persons without a high school diploma who use correct grammar, are able to get along well with people, and present a neat appearance. Usually, little training is required but as a beginner, you would probably work with someone experienced in the job.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

1 Performing a variety of duties which may often change.

5 Dealing with people in actual job duties beyond giving and receiving instructions.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

2 Activities involving business contact with people.

6 Activities concerned with people and the communication of ideas.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

2 Anything beyond short demonstration up to and including 30 days.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.			▨		
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.			▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **3**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **L**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.868**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

99	Selling and Related Work
93	Child and Adult Care
106	Ushering, Messenger Service, and Related Work
79	Protecting and Related Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **505**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

105

Data-Low
People-Average
Things-Low

Miscellaneous Personal Service Work

Food Serving, Portering, Valeting, and Related Activities

Miscellaneous personal service work means to provide people with various services related to their personal comfort, convenience, or appearance. Examples of workers in this group are General Maid, Bus Boy, Car Hop, Bartender, Bellman, Manicurist, Valet, Baggage Porter, and Airplane Stewardess.

WORK PERFORMED – What would you do as a worker in this field?

As a worker in this field, you might serve people food and drink in public places, see that their clothes are cleaned and repaired (valeting), carry their luggage (portering), clean their rooms, or perform other services which have to do with their comfort, convenience, and appearance. Most of this work would require you to be in direct or close contact with the people receiving your services.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this group would require you to (1) be able and willing to understand, take, and carry out orders; (2) be courteous (polite) and cheerful in dealing with the public; (3) be able to adjust easily to doing the same kind of work over and over; (4) use your hands quickly and accurately; and (5) be clean in your personal habits and appearance as well as free from communicable diseases (those that are easily transferred to others).

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- part-time experience taking food orders and serving
- willingness to wear a uniform
- courteous and pleasant personality
- neat and clean appearance

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Although it is possible for you to get into this field without much formal education, many employers prefer to hire people who have had at least two or three years of high school. You can gain a good background by taking special courses offered by vocational (trade) schools, hotel and restaurant associations, or employers. Some employers hire individuals who have had no experience and give them a few weeks of on-the-job training. Workers in this group, especially those involved with the serving of food, are usually required to obtain a health certificate (license) to make sure that they are free from communicable diseases.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

3 Doing things only under specific instructions, allowing little or no room for independent action or judgment in working out job problems.

5 Dealing with people in actual job duties beyond giving and receiving instructions.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

2 Activities involving business contact with people.

3 Activities of a routine, definite, organized nature.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

2 Anything beyond short demonstration up to and including 30 days.

3 Over 30 days up to and including 3 months.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.	▨	▨			
K – MOTOR COORDINATION: ability to coordinate the use of eyes and hands or fingers rapidly and accurately to perform a task.		▨	▨		
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.		▨	▨		
M – MANUAL DEXTERITY: ability to work easily and skillfully with the hands.		▨	▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 3 2

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: L 4 5

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .868 .878

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

107	Animal Care
93	Child and Adult Care
106	Ushering, Messenger Service, and Related Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **507**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

106

Data-Low
People-Average
Things-Low

Ushering, Messenger Service, and Related Work

Ushering means to help people find seats in public places. Messenger service means to take and deliver messages for people. Examples of workers in this group are Telegraph Messenger, Office Boy, Usher, Railroad Conductor, and Doorman.

WORK PERFORMED – What would you do as a worker in this field?

Your work in this job group might involve handing out programs, taking tickets, and showing people to their seats in public places such as theaters and auditoriums, or you might collect tickets on a railroad or other public vehicle. Other tasks might include helping people into and out of buildings, vehicles, and other public places; running errands; or taking and delivering messages.

WORKER REQUIREMENTS – What qualifications would you need?

In this field, you need to (1) be able and willing to follow instructions, (2) get along well with people, (3) adjust to doing the same kind of work over and over, and (4) be able to maintain your physical strength. For many jobs in this field you must also be willing to wear a uniform.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- experience as an usher at school events such as football games
- good manners
- neat appearance
- good physical condition

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Most employers prefer to hire people who have had some high school education. Personal characteristics such as being able to get along well with people, being patient, being dependable, and paying attention are important to getting a job in this field. Training time for such jobs is short and you would be expected to do the job well after being shown how to do it or after a brief breaking-in period.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

3 Doing things only under specific instructions, allowing little or no room for independent action or judgment in working out job problems.

5 Dealing with people in actual job duties beyond giving and receiving instructions.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

2 Activities involving business contact with people.

3 Activities of a routine, definite, organized nature.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

2 Anything beyond short demonstration up to and including 30 days.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.		▨	▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 2

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: L 4 5

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): .868 .878

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

102	Customer Service Work, N.E.C.
103	Miscellaneous Customer Service Work
104	Accommodating Work
50	Signaling and Related Work
105	Miscellaneous Personal Service Work (Food Serving, Portering, Valeting, and Related Activities)

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **509**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

107

Data-Low
People-Average
Things-Average

Animal Care

Animal care means to provide services that benefit the health and well-being of animals. Examples of workers in this group are Horse Exerciser, Animal Caretaker, Dog Groomer, Veterinary-Hospital Attendant, and Pet Shop Attendant.

WORK PERFORMED – What would you do as a worker in this field?

In this field you would be concerned with making sure that animals in your care are provided with the best services possible. You might feed and water them, taking note of any special foods they might require; provide them with shelter, such as kennels or stables; train and exercise them; or treat their minor illnesses or injuries. Grooming animals, another possible task, would involve shampooing, brushing, or clipping the animals' hair. You might specialize in the care of a particular kind of animal, such as horses or dogs.

WORKER REQUIREMENTS – What qualifications would you need?

To be successful in this field you would have to (1) like animals and be concerned for their welfare (well-being), (2) use your hands and fingers rapidly and accurately, (3) coordinate the movement of your eyes, hands, and feet (make them work together) the way the job requires, (4) be able to adjust to work that does not change much, and (5) maintain your physical strength.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- having and caring for pets or work animals
- interest in the well-being of animals
- part-time work experience in a stable or kennel
- good physical condition
- 4-H project concerning animal care

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

You would probably find opportunities for this kind of work in larger cities, where there are many pets and services for their care. Employment opportunities also exist in rural areas where breeding, raising, and caring for animals is an important source of income. As a beginning worker, you would usually be assigned simple jobs and would learn to do more difficult work through first-hand experience and watching other workers.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

1 Performing a variety of duties which may often change.

3 Doing things only under specific instructions, allowing little or no room for independent action or judgment in working out job problems.

0 Rating information using standards that can be measured or checked.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

3 Activities of a routine, definite, organized nature.

4 Activities which involve direct personal contact, to help people or deal with them for other purposes.

6 Activities concerned with people and the communication of ideas.

9 Activities which are nonsocial and involve the use of machines, processes, or methods.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

3 Over 30 days up to and including 3 months.

4 Over 3 months up to and including 6 months.

5 Over 6 months up to and including 1 year.

6 Over 1 year up to and including 2 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.		▨	▨		
M – MANUAL DEXTERITY: ability to work easily and skillfully with the hands.			▨		
E – EYE-HAND-FOOT COORDINATION: ability to coordinate the movements of the hands and feet according to visual signals and directions.	▨	▨	▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **2 3**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **L M H 3 4 6**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.874 .877**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

93	Child and Adult Care
105	Miscellaneous Personal Service Work (Food Serving, Portering, Valeting, and Related Activities)

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **511**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

Motion Picture Projecting, Photographic Machine Work, and Related Activities

108

Data-High
People-Low
Things-High

Motion picture projecting, photographic machine work, and related activities involve sending and receiving picture images through the use of machines. Examples of workers in this group are Special Effects Cameraman, Motion-Picture Projectionist, Video-Recording Engineer, Xerography-Machine Operator, Photoengraving Photographer, and Lithographic Photographer.

WORK PERFORMED – What would you do as a worker in this field?

Your tasks in this field of work would involve operating machines which either send or receive pictures. You might operate a movie projector which shows moving images on a screen. This would involve threading the film through the projector, making focusing adjustments (changes) and doing other things needed for proper operation of the projector. You might operate a camera which has been focused on a fixed point, such as the finish line at a race track, in order to record the winner. You might operate photographic machines that send pictures by wire. These are used to transfer pictures from one point to a distant receiving point. Almost all jobs in this field are done by following step-by-step methods which would leave little room for you to be creative.

WORKER REQUIREMENTS – What qualifications would you need?

For jobs in this group you need to (1) be able to learn and use photographic processes and methods, (2) be able to recognize differences in pictures and the materials used to make them, (3) use your hands and fingers quickly and accurately in small spaces, (4) prefer working with machines, and (5) be able to work with complete (100%) accuracy.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- good grades in vocational and craft courses in high school
- experience running a movie projector for club, church, or school functions
- photography as a hobby
- liking to work with machines and equipment
- working as a member of the school audio-visual team

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

A high school education with appropriate vocational (trade) course work, such as photography or audio-visual work, usually satisfies the entry requirements for jobs in this field. Beginning workers usually train for a period lasting from a few months to over a year under the direction of an experienced worker.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

0 Rating information using standards that can be measured or checked.
Y Working within precise limits or standards of accuracy.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

7 Activities of a scientific and technical nature.
9 Activities which are nonsocial and involve the use of machines, processes, or methods.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

5 Over 6 months up to and including 1 year.
6 Over 1 year up to and including 2 years.
7 Over 2 years up to and including 4 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.			▨		
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.		▨	▨	▨	
P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.			▨	▨	
F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.			▨		
M – MANUAL DEXTERITY: ability to work easily and skillfully with the hands.			▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **4**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **S L 4 6**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.282 .382**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

3 Photography and Motion Picture Camera Work
109 Radio and Television Transmitting and Receiving
23 Typesetting, Reproducing, and Related Machine Work
82 Operating -- Controlling

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **514**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

Radio and Television Transmitting and Receiving

109

Data-High
People-Low
Things-High

Transmitting in this case, means to send radio and television messages to stations which are equipped to receive them. Receiving means to listen to and/or record these messages, using special equipment. Examples of workers in this group are Airline Radio Operator, Radio Intelligence Operator, Sound Man, Sound Mixer, Control-Room Technician, and Transmitter Operator.

WORK PERFORMED – What would you do as a worker in this field?

In this field, your work would involve setting up and operating radio and television transmitting and receiving equipment and any other studio equipment related to these functions. Your work might take place in either regular or mobile stations. You might set up and operate electronic control equipment which is used to mix and control sound, or sound and pictures to be sent over closed circuit systems; or to record programs on records, tapes, or films.

WORKER REQUIREMENTS – What qualifications would you need?

For jobs in this field you must be able to (1) understand the principles of radio and television broadcasting, and work according to the laws of the Federal Communications Commission, (2) learn the codes and technical language related to radio broadcasting; (3) use your hands skillfully to install (put in place), adjust, and operate radio and television equipment; (4) adjust to different kinds of programs or operating conditions; (5) use technical knowledge to solve operating problems, and (6) follow exact standards in your work.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- graduation from high school with good grades in algebra, trigonometry, and physics
- experience gained as an amateur (nonprofessional) radio operator
- completion of electronics courses in technical school
- pleasant speaking voice and good vocabulary (for jobs which include announcing)

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Most jobs in this field require special training in electronics, either from a technical school or college. It is possible to gain experience by working in fairly simple jobs at radio or televisions stations. To operate or adjust transmitters, you need a proper license from the Federal Communications Commission. Small stations often require their technicians and sometimes their announcers to have a first class radio-telephone operator license.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

1 Performing a variety of duties which may often change.
9 Rating information by using personal judgment.
0 Rating information using standards that can be measured or checked.
Y Working within precise limits or standards of accuracy.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

7 Activities of a scientific and technical nature.
9 Activities which are nonsocial and involve the use of machines, processes, or methods.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

5 Over 6 months up to and including 1 year.
6 Over 1 year up to and including 2 years.
7 Over 2 years up to and including 4 years.
8 Over 4 years up to and including 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	
Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.		▨	▨		
K – MOTOR COORDINATION: ability to coordinate the use of eyes and hands or fingers rapidly and accurately to perform a task.		▨	▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **4 5**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **S L 4 5 6**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.282 .382**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

108 Motion Picture Projecting, Photographic Machine Work, and Related Activities
67 Radio Announcing and Related Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **516**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

110

Data-Average
People-Average
Things-High

Transportation Service Work

Transportation service work means to drive a vehicle which carries paying passengers. Examples of workers in this group are Taxi Driver and Bus Driver.

WORK PERFORMED – What would you do as a worker in this field?

As a worker in this field, you would drive a taxi, airport limousine, bus, or other kind of vehicle to transport paying passengers. You would drive over a previously determined route, such as a bus route, or you might drive or park a taxi in places where you are most likely to pick up passengers. In addition to driving, you would collect fares (money), make change, keep simple records, give out information, and help people with their luggage.

WORKER REQUIREMENTS – What qualifications would you need?

To do well in this job group, you would have to (1) be able to drive a vehicle; (2) coordinate the movement of your eyes, hands, and feet (make them work together) as the job requires; (3) be able to judge differences in spaces and distances; (4) be courteous (polite) and tactful (thoughtful) in dealing with people; and (5) be able to adjust to doing the same kind of work over and over.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- liking to drive motor vehicles and having a good driving record
- experience driving a taxi part-time
- completion of a driver-education course in high school

TRAINING AND METHODS ENTRY – How can you prepare for this field of work and get started in it?

Jobs in this field require that you have a license to operate a public motor vehicle. The particular type of operator's license needed depends upon the city and state in which you work. You would usually need a driver's license, a chauffeur's license, and a good driving record, and you should be in good physical condition. Formal education is not always required, but many employers prefer workers with high school backgrounds. A pleasant personality and a neat appearance are usually considered important. New employees are usually given a brief training period driving vehicles without passengers, under the direction of an experienced driver.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

2 Repeating activities or tasks of short duration according to a required routine procedure or sequence.

5 Dealing with people in actual job duties beyond giving and receiving instructions.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

1 Activities dealing with things and objects.
2 Activities involving business contact with people.
3 Activities of a routine, definite, organized nature.
9 Activities which are nonsocial and involve the use of machines, processes, or methods.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

3 Over 30 days up to and including 3 months.
5 Over 6 months up to and including 1 year.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.			▨		
S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.			▨		
Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.		▨	▨		
E – EYE-HAND-FOOT COORDINATION: ability to coordinate the movements of the hands and feet according to visual signals and directions.			▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **3 4**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **L M 4 5 6**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.363 .364 .463**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

77 Transporting and Test Driving
83 Driving--Operating

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **519**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

111

Data-High
People-High
Things-Low

Journalism and Editorial Work

Journalism is concerned with writing, editing and publishing newspapers, magazines and similar materials. Editing may mean to select, correct, and prepare manuscripts for publication or it may mean to develop or approve the policies and direct the preparation of such publications as newspapers and magazines. Examples of workers in this group are Book Editor, Sports Editor, News Editor, Newspaper Editor, Newspaper Managing Editor, Technical-and-Scientific Publications Manager, and Columnist.

WORK PERFORMED – What would you do as a worker in this field?

Your work in this group might consist of writing or editing material designed to inform, to entertain, or to influence the actions, attitudes, or opinions of the public. You might write or edit materials, such as a daily column, which are designed to inform or amuse the public. You might direct the policy and production of a publication or run a department concerned with this activity. Some of your work might involve supervisory duties.

WORKER REQUIREMENTS – What qualifications would you need?

In this field you would need to (1) use language with ease and accuracy and have a good vocabulary; (2) think of new ways to approach or arrange the subjects about which you write; (3) be able to get along well with people; (4) be able to organize your work and the work of others you might supervise; (5) be able to persuade others to see your point of view; and (6) pay close attention to details.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- ability to appear at ease in front of others
- good vocabulary
- good grades in language arts classes
- experience writing for a school newspaper
- interest in current events
- good reading habits or enjoyment in reading

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

To get into this field, you would probably work up from positions requiring lesser skills or responsibilities. Experience as a reporter or factual writer, together with working in a communications setting (magazine or newspaper publishing house, or radio or TV studio) and gaining an understanding of its operations, is very necessary for entry into this field.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

4 Directing, controlling, and planning an entire activity or activities of others.
5 Dealing with people in actual job duties beyond giving and receiving instructions.
7 Influencing people's opinions, attitudes, or judgments about ideas or things.
9 Rating information by using personal judgment.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

2 Activities involving business contact with people.
5 Activities which bring recognition or appreciation by others.
6 Activities concerned with people and the communication of ideas.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

7 Over 2 years up to and including 4 years.
8 Over 4 years up to and including 10 years.
9 Over 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

	Lower 1/3		Middle 1/3	Upper 1/3	
APTITUDES	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.					▨
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.					▨
Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.			▨		

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **5 6**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **S 5 6**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.018 .038 .068**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

112	Creative Writing
6	Administration
113	News Reporting and Related Work
114	Translating, Editing, and Related Work
61	Technical Writing and Related Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **522**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

112

Data-High
People-Low
Things-Low

Creative Writing

Creative writing means to use imagination to create stories, poems, plays, and other forms of literature. Examples of workers in this group are Essayist, Literary Writer, Poet, Playwright, Script Writer, Copy Writer, Critic, and Lexicographer.

WORK PERFORMED – What would you do as a worker in this field?

As a creative writer, you would be concerned mainly with expressing your own ideas and feelings, or interpreting the ideas of others. You might choose to create one or more of the following literary forms: poetry, fiction, criticism, lyrics, advertising copy, and plays. Your particular talent, skill, or style would usually determine the type of creative writing you would perform well and enjoy.

WORKER REQUIREMENTS – What qualifications would you need?

In this field you would need to (1) understand the meaning of ideas related to writing, such as the development of theme, character, plot, and tone; (2) think of new ways to approach or arrange the subjects about which you write; (3) have a large vocabulary and use words skillfully; (4) have a good memory for details; (5) be able to put yourself into the place of others and into their experiences; and (6) express yourself in a clear and understandable manner.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- broad experiences in reading and studying the works of other writers
- success in language arts courses and on language tests
- desire for recognition in the literary field
- membership in literary or book clubs
- experience in writing poems, plays, or other literary forms

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

There are no set standards of training or methods of entry into this field. All of a person's knowledge and experience can serve as preparation. The skills needed for creative writing are gained largely through self-training, together with the development of natural ability. Specialized training may be needed, depending upon the type of creative writing or the specialized subjects in which you may be interested.

Certain kinds of academic work serve as a more useful background than others. A bachelor's (four-year) degree in journalism, literature, or, in some cases, liberal arts, would probably be enough education to get you into several writing fields. Experience in these would serve as useful preparation for creative writing.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

7 Influencing people's opinions, attitudes, or judgments about ideas or things.
9 Rating information by using personal judgment.
X Interpreting feelings, ideas, or facts from a personal point of view.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

5 Activities which bring recognition or appreciation by others.
6 Activities concerned with people and the communication of ideas.
8 Activities of an unusual, indefinite nature which require creative imagination.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

6 Over 1 year up to and including 2 years.
7 Over 2 years up to and including 4 years.
8 Over 4 years up to and including 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.					▨
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.				▨	▨

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **6 5**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **S 5**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.088**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

111 Journalism and Editorial Work
113 News Reporting and Related Work
114 Translating, Editing, and Related Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **524**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

113

Data-High
People-Average
Things-Low

News Reporting and Related Work

News reporting and related work means to gather information about newsworthy items or events and write articles for publication or for broadcasting. Examples of workers in this group are Reporter, Feature Reporter, Correspondent, and Rewrite Man.

WORK PERFORMED – What would you do as a worker in this field?

As a worker in this field, you would collect information about people or events of public interest and would write stories, articles, or similar materials to report your findings or opinions. Your written material might be published in newspapers, magazines, or other printed media, or it might be read on radio and television broadcasts. You might be a regular salaried employee or you might work on a free lance (independent) basis and be paid according to how much of your writing is accepted for publication or broadcasting. For some jobs in this field you might cover events of one particular kind such as sports events, social gatherings, police activities, or fires and accidents.

WORKER REQUIREMENTS – What qualifications would you need?

Jobs in this group would require you to (1) have a good vocabulary and use language with ease and accuracy, (2) have some understanding of the problems and feelings of people, (3) be able to persuade people to see your point of view, (4) be able to organize your work, (5) be able to adjust to different kinds of situations, and (6) pay attention to detail.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- ability to appear at ease in front of others
- good vocabulary
- good grades in school, especially in language arts and journalism courses
- interest in current events
- habit of reading a great deal

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Most people who enter this field receive special training in English or journalism at the college or university level. Some small daily or weekly newspapers accept workers with only a high school education, providing they have shown particular talent for this work by contributing to school publications or by producing good written materials.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

1 Performing a variety of duties which may often change.
5 Dealing with people in actual job duties beyond giving and receiving instructions.
9 Rating information by using personal judgment.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

2 Activities involving business contact with people
5 Activities which bring recognition or appreciation by others
satisfaction from working on or producing things.
6 Activities concerned with people and the communication of ideas

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

- Over 2 years up to and including 4 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for **average** success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for **every** job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.					▨
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.					▨

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **5**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **S L 5 6**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.268**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

112	Creative Writing
111	Journalism and Editorial Work
67	Radio Announcing and Related Work
114	Translating, Editing, and Related Work
15	Corresponding and Related Work
94	Promotion and Publicity

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **526.** Volume I of the DOT lists these jobs in alphabetical order and gives further information.

114

Data-High
People-Low
Things-Low

Translating, Editing, and Related Work

Translating, as used here, means to change written material from one language to another. Editing means to rewrite or change written materical to improve it and make it more understandable. Examples of workers in this group are Book Critic, Bibliographer, Copy Reader, Translator, Cryptanalyst, Handwriting Expert, and Copyright Expert.

WORK PERFORMED – What would you do as a worker in this field?

Your work in this field might include one or more of the following activities: (1) translating writing from one language to another; (2) studying coding systems to break them down and decode messages; (3) making decisions about the suitability of materials for publication; (4) editing material to improve it and make it more understandable; and (5) performing research in museums, libraries, and archives (places where official records are kept).

WORKER REQUIREMENTS – What qualifications would you need?

Work in this field would require you to (1) have a good vocabulary and use language with ease and accuracy in communicating ideas, (2) be precise when translating from one language to another, (3) edit material accurately, (4) conduct research thoroughly, (5) be able to find and note specific information from masses of unrelated material, and (6) prepare clear and well organized reports.

CLUES FOR RELATING APPLICANTS AND REQUIREMENTS – What personal characteristics or experiences might help you decide if you should explore this field of work?

- liking for language arts courses in high school
- membership in a foreign language "pen pal" club
- editorship of a high school newspaper
- experience as a translator for an international club in high school or college
- experience as part-time research librarian in college

TRAINING AND METHODS OF ENTRY – How can you prepare for this field of work and get started in it?

Usually, a college education (four-year bachelor's degree) which has included a number of courses in foreign languages, English, and writing is enough for entry into this field. People who have some, but not all, of the requirements are sometimes employed and given on-the-job training and experience under the supervision (direction) and guidance of experienced workers.

Qualifications Profile

TEMPERAMENTS – The different kinds of working conditions or situations workers in this group must adjust to include

9 Rating information by using personal judgment.
0 Rating information using standards that can be measured or checked.
Y Working within precise limits or standards of accuracy.

INTERESTS – People have interests or preferences for certain types of work activities over others. Workers in this group generally prefer

6 Activities concerned with people and the communication of ideas.

SPECIFIC VOCATIONAL PREPARATION – Different jobs require different amounts of specific vocational training. The following statements show the range of time – depending on the specific job – necessary to develop the knowledge and skills required by this job group.

6 Over 1 year up to and including 2 years.
7 Over 2 years up to and including 4 years.
8 Over 4 years up to and including 10 years.

APTITUDES – The aptitudes listed below show the specific abilities you would need in order to perform tasks belonging to jobs in this field. The shaded parts of the chart represent the portion of the total working population that has the level of aptitude necessary for average success. The portion of the population that falls to the right of the shaded areas has a higher amount of aptitude than necessary for average success and the portion that falls to the left does not have the necessary level of aptitude. Not all the aptitudes listed are important for every job within this field, but some combination of them is essential for each job.

ESTIMATED PORTION OF GENERAL WORKING POPULATION WITH REQUIRED ABILITY

APTITUDES	Lower 1/3		Middle 1/3	Upper 1/3	
	10%	23%	34%	23%	10%
G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.				▨	
V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.				▨	▨
Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.			▨	▨	

Other Information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): **5 4**

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: **S**

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

D-P-T Code(s): **.288**

RELATED GROUPS OF JOBS – Other Worker Trait Groups related to this Worker Trait Group include:

111	Journalism and Editorial Work
113	News Reporting and Related Work
15	Corresponding and Related Work
16	Information Gathering, Dispensing, Verifying, and Related Work

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **528**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

APPENDICES

APPENDIX - A General Educational Development
APPENDIX - B Physical Demands
APPENDIX - C People -Data -Things
APPENDIX - D Temperaments
APPENDIX - E Interests
APPENDIX - F Specific Vocational Preparation
APPENDIX - G Aptitudes
APPENDIX - H How To Use The Dictionary of Occupational Titles DOT

General Educational Development

Appendix A

"General Educational Development" means those aspects of education which contribute to a worker's reasoning skills and his ability to follow instructions as well as to his mathematical and language skills. It is education of a general nature rather than for a particular career or occupation and may be acquired in elementary school, high school, college, or from experience or self-directed study.

The three types of General Educational Development (reasoning, mathematical, and language) are defined in terms of six difficulty levels, ranging from the most complex (number 6) to the simplest (number 1).

Level	Reasoning Development	Mathematical Development	Language Development
6	By applying a very high level of mental ability, use logical or scientific thinking to establish the most effective methods and procedures or to comprehend and apply those created by others to deal with a wide variety of problems. Interpret or create non-verbal symbols (those not expressed in words) of the highest level of difficulty, such as chemical or mathematical formulas or equations, graphs, or musical notes. Comprehend the most difficult concepts and apply them to such tasks as creative writing, composing and arranging music, performing surgical procedures, analyzing data-processing problems, or communicating research findings.	Apply knowledge of advanced mathematics, such as statistics (data systematically gathered and organized) or calculus (calculating by using a highly specialized system of algebraic symbols), work with and apply creatively a wide variety of mathematical concepts.	Understand and express words and ideas at a level to perform such functions as • reporting, writing, or editing articles for such publications as newspapers, magazines, and technical or scientific journals; • preparing deeds, leases, wills, mortgages and contracts; • preparing and delivering lectures on politics, economics, education, or science; • interviewing, counseling, or advising such people as students, clients, or patients in such matters as vocational rehabilitiation, mental hygiene, problems in marriage, or eligibility for welfare; • understanding engineering data to design buildings or bridges.
5	Apply the principles of logical or scientific thinking at a level to define problems, collect information, and establish facts in order to support proper conclusions. Interpret many different kinds of technical instructions from books, diagrams, blueprints, manuals, or mathematical tables. Deal with situations requiring a high level of mental ability to establish methods and procedures for such purposes as applying research to increase man's knowledge of the properties of matter and energy, developing new processes and products, or solving scientific problems.		
4	Apply the principles of systems (such as bookkeeping, electric wiring systems, house building, nursing, or farm management) to solve practical problems and to deal with situations for which procedures have not necessarily been set. Such situations require frequent decisions involving changes in or from methods or procedures being used. Interpret instructions that are written, spoken, or in the form of diagrams or schedules.	Perform routine arithmetic, algebra, and geometry procedures for practical use.	Understand and express words and ideas at a level to perform such functions as • typing copy from shorthand notes, making appointments for employer and handling his personal mail, interviewing and screening people wishing to speak to him and writing routine correspondence independently; • interviewing job applicants to determine work best suited to their abilities and experience and contacting employers to interest them in services of the employment agency; • interpreting technical manuals, as well as drawings, and plans, such as layouts and blueprints.
3	Apply common sense understanding to carry out instructions that are written, spoken, or in the form of diagrams. Deal with situations requiring fairly frequent decisions involving changes in or from established methods or procedures.	Work arithmetic problems involving fractions, decimals, and percentages.	Understand and express words and ideas at a level to perform such functions as • filing, recording, and mailing such material as forms, checks, receipts, and bills; • copying information from one form to another, filling in report forms, and typing from a rough draft or corrected copy; • interviewing members of a household to obtain such information as age, occupation, and number of children for use in surveys or in studies having to do with such things as the production and distribution of wealth of a government or community; • guiding people on tours through historical or public buildings, describing such features as size, value, and points of interest.
2	Apply common sense understanding to carry out detailed but routine written or spoken instructions. Deal with situations requiring a few decisions involving changes in or from established methods or procedures.	Use arithmetic to add, subtract, multiply, and divide whole numbers.	
1	Apply common sense understanding to carry out routine instructions involving only one or two steps. Deal with situations requiring few if any decisions involving changes in or from established methods or procedures.	Perform simple addition and subtraction, read and copy figures, or count and record.	Understand and express words and ideas at a level to perform such functions as • learning job duties from spoken instructions or from being shown how; • writing on tags or sales slips such information as name and address of customer, weight, number, or type of product; • requesting orally or in writing such supplies as linens, soap, or work materials.

Physical Demands

"Physical demands," as used here, may mean either the physical requirements of a job or the physical capacity a worker must have to meet requirements of a job. For example, "seeing" (becoming aware of something through the sense of sight) is the name of a physical demand required by many jobs and is also a physical capacity (the sense of sight) possessed by most people. A worker must have physical capacities at least in an amount equal to the physical demands required by the job.

THE FACTORS

I **Lifting, Carrying, Pushing, and/or Pulling.** These are the most important "strength" activities, and generally, a person who is able to do one can do them all. They are defined as follows:

(1) Lifting: raising or lowering an object from one level to another, (including upward pulling).
(2) Carrying: moving an object from one place to another, usually holding it in the hands or arms or on the shoulder.
(3) Pushing: using force upon an object to move it away from the force (including slapping, striking, kicking, and treadle actions).
(4) Pulling: using force upon an object to move it toward the force (including jerking).

Factor No. 1 (lifting, carrying, pushing, and/or pulling) may be divided into the following levels of work requirements:

S Sedentary Work

Sedentary work usually involves sitting but may often involve walking and standing. Objects lifted and/or carried, such as record and account books or small tools, may weigh no more than 10 pounds.

L Light Work

Light work means lifting objects weighing no more than 20 pounds, with frequent lifting and carrying objects weighing up to 10 pounds. Jobs may be considered light work if they require considerable walking or standing, or if they require sitting most of the time while using arms and legs for pushing and pulling.

M Medium Work

Medium work means lifting objects weighing no more than 50 pounds, with frequent lifting and carrying of objects weighing no more than 25 pounds.

H Heavy Work

Heavy work means lifting objects weighing no more than 100 pounds, with frequent lifting and carrying of objects weighing no more than 50 pounds.

V Very Heavy Work

Very heavy work means lifting objects weighing more than 100 pounds, with frequent lifting and carrying of objects weighing 50 pounds or more.

2 **Climbing and/or balancing:**

(1) Climbing: going up or down ladders, stairs, scaffolding (a raised structure to hold workers or building materials), ramps, poles, ropes, and the like, using the feet and legs and/or arms.

(2) Balancing: maintaining control of the body to keep from falling when walking, standing, crouching, or running on narrow, slippery, or moving surfaces, or when performing gymnastic feats.

3 **Stooping, kneeling, crouching, and/or crawling:**

(1) Stooping: curving the body downward and forward by bending the spine at the waist.

(2) Kneeling: getting down on the knee or knees.

(3) Crouching: curving the body downward and forward by bending the legs and spine.

(4) Crawling: moving about on the hands and knees or hands and feet.

4 **Reaching, handling, fingering, and/or feeling:**

(1) Reaching: stretching out the hands and arms in any direction.

(2) Handling: taking hold of an object, turning it, or otherwise working with the hand or hands (fingering not involved).

(3) Fingering: picking, pinching, or otherwise working primarily with the fingers (rather than with the whole hand as in handling).

(4) Feeling: becoming aware of such characteristics as size, shape, temperature, or texture of objects and materials by use of the hands and fingertips.

5 **Talking and/or hearing:**

(1) Talking: expressing or exchanging ideas by means of the spoken word.

(2) Hearing: receiving sounds and/or information through the ears.

6 **Seeing:**

Becoming aware of such characteristics of objects as shape, size, distance, motion, or color by using the eyes. The major functions of the eyes are defined as follows:

(1) Acuity, far – clear vision at 20 feet or more. Acuity, near – clear vision at 20 inches or less.

(2) Depth perception – ability to recognize the length, width, or thickness of objects; and ability to judge distance and space relationships so as to see objects where and as they actually are.

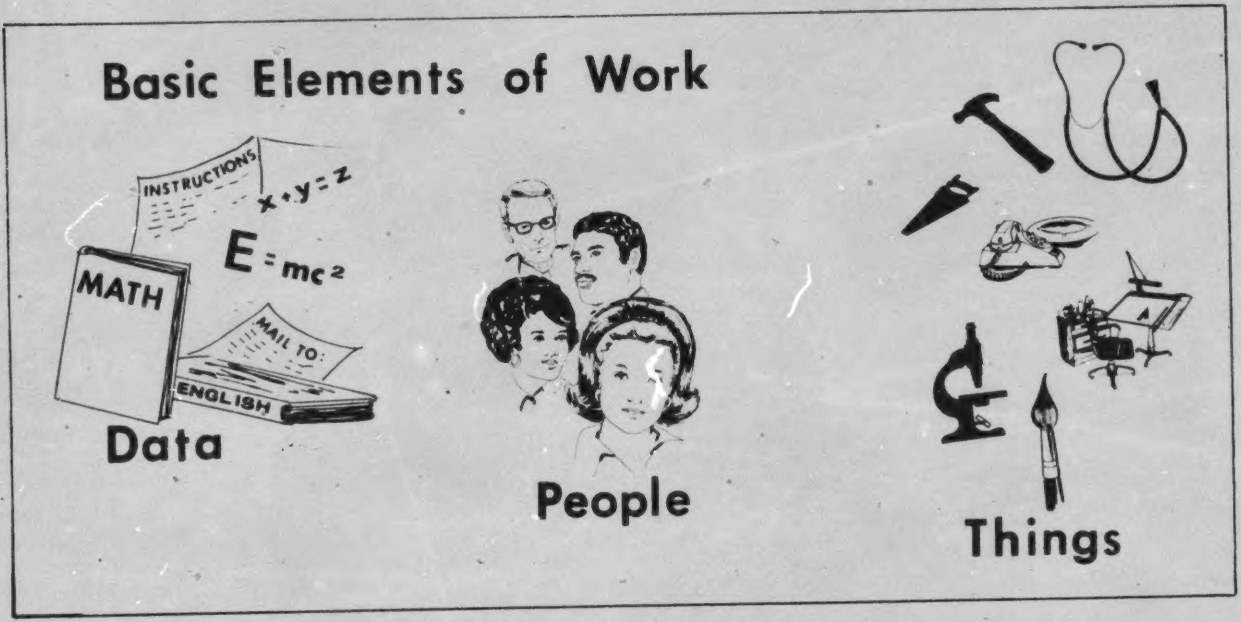
(3) Field of vision: the area that can be seen up and down and right and left while the eyes are fixed on a given point.

(4) Accommodation – adjustment of the lens of the eye to bring an object into sharp focus. This is especially important when doing work close to, but at varying distance from the eye.

(5) Color vision – the ability to identify and distinguish colors.

Data-People-Things

Every job that exists today requires the worker who performs it to work with Data (ideas or information), with People, or with Things (tools, machines, or materials), or with some combination of the three. Because these three elements (Data, People, Things) are important in varying degrees to all jobs, we call them the basic elements of work.



All jobs can be described in terms of their level of involvement with each of the basic elements. For example, a waitress serving customers in a restaurant has a low or simple level of involvement with people, while a lawyer providing legal services for clients has a high or complex level of involvement with people.

In order to describe all jobs in a useful way, the people who developed the *Dictionary of Occupational Titles (DOT)* prepared a list of work activities related to each of the basic elements. They then arranged each list in order from the most difficult or complex down to the simplest activity. They gave each activity a name, a number, and a definition. (*DOT,* Volume II, page 649.)

Any group of related activities arranged in order from one extreme to the other (such as high to low or difficult to easy) is called a hierarchy. Knowing how to use the Data, People, Things hierarchies is important for anyone who wants to learn about jobs. Appendix C has been written for this purpose.

In each of the Worker Trait Groups included in this *Guide*, the Data, People, Things levels are shown in two places. The upper right hand corner of the front page of each Worker Trait Group is marked to show if the group requires High, Average, or Low involvement with each hierarchy. The bottom of the back page of each Worker Trait Group is marked to show the Data, People, Things code number from the *Dictionary of Occupational Titles*

DATA-PEOPLE-THINGS LEVELS AS SHOWN ON WORKER TRAIT GROUP PAGES

4

Data-High
People-Low
Things-High

Front of Page

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.
D-P-T Code(s): **.081**

Back of Page

This Appendix will help you understand this information. It is arranged in the following manner:

First is a table which shows the activities in each of the three hierarchies (groups). The order in which they are listed indicates the level of involvement from the highest or most complex (difficult), which is number 0, down to the lowest or simplest, which is number 7 or 8. The statement "no significant relationship" (number 7 or 8) simply means that the job has little or no involvement with that particular hierarchy.

Some of the words used to identify the different activities, showing levels of involvement in each of the hierarchies, are quite difficult. These words are the same as those which are used in the *Dictionary of Occupational Titles (DOT)*. It is important that you learn their meanings so that you can use the *DOT* to get additional information about jobs you are exploring.

Following the table are sections describing each of the three hierarchies (Data, People, Things). Each section has two parts: a definition of the group or hierarchy, and a definition of each of the activities which indicate levels of involvement. Before reading the definitions of the activities in each list, you should study the definitions of Data, People, and Things. You should also keep in mind that every job belongs at a particular level in each of the Data, People, Things hierarchies. Where it falls shows how much involvement it has with Data, People, or Things. Examine the table in this Appendix to see which levels in each hierarchy may be considered high, average, or low as they relate to job involvement. On the back of each Worker Trait Group in the Data, People, Things section, you will find the three-digit number which shows a worker's involvement with Data, People, or Things. Keep in mind that the first digit always refers to Data, the second to People, and the third to Things. It is important for you to understand that some jobs may have a high level of involvement with one hierarchy but an average or low level with others. For example, the code number for commercial pilot (.283) means that this worker has a high level of involvement with Data and Things (2 and 3) but a low level of involvement with People (8); a disc jockey (.148) has a low level of involvement with Things (8) but a high level of involvement with Data and People (1 and 4); a factory worker who loads and unloads a machine (.886) has a low level of involvement with Data and People (8 and 8) and an average level of involvement with Things (6); while a surgeon (.101) has a high level of involvement with all three.

DOT CODE 001. 0 8 1
D P T

0 Data - High
8 People - Low
1 Things - High

The numbers in the table are numbers which are used as the last three digits (numerals) in the code number for jobs in the *DOT*. The code number shows how each job is related to Data, People, and Things. The number used in the *DOT* always indicates the highest level of involvement with Data, People, and Things as well as the levels that are less complex (easier). Thus, if a code number shows a level 4 relationship with Data, People, or Things, this means that the job includes not only activities at this level but, it may also include activities at lower levels (5, 6, 7, and 8). As you use this *Guide* and the *DOT*, it is important to keep in mind that the lowest number (0) represents the most complex or highest level of relationship and the highest number (8) represents the simplest or lowest level of relationship. The following table will help you understand this relationship:

ACTIVITIES IN THE DATA, PEOPLE, THINGS HIERARCHIES

		DATA (4th digit)	PEOPLE (5th digit)	THINGS (6th digit)
Complex ↑	High	0 Synthesizing 1 Coordinating 2 Analyzing	0 Mentoring 1 Negotiating 2 Instructing 3 Supervising 4 Diverting	0 Setting-Up 1 Precision Working 2 Operating-Controlling 3 Driving-Operating
	Average	3 Compiling 4 Computing 5 Copying 6 Comparing	5 Persuading 6 Speaking-Signaling 7 Serving	4 Manipulating 5 Tending 6 Feeding-Offbearing 7 Handling
↓ Simple	Low	7 No significant 8 relationship	8 No significant relationship	8 No significant relationship

The following information includes a definition of each of the three hierarchies as shown in the table above and an explanation of each level of involvement as listed in the table.

DATA

Data: Information, knowledge, and ideas having to do with known facts, people or animals, or objects such as materials, machines, and products. Data may be gathered by observing, investigating, interpreting, forming mental pictures, or imagining. While data cannot in itself be touched or handled, it may be expressed in numbers, words, or symbols. It may also be expressed by the spoken word, or may be in the form of thoughts and ideas.

LEVELS OF INVOLVEMENT WITH DATA

0 **Synthesizing:** Discovering facts and/or developing logical conclusions or interpretations of ideas by bringing together the analyses of data (results of examining and determining the value of data).

1 **Coordinating:** Determining the time, place, and order of operations or actions to be performed as a result of analyzing data. (See item 2, Analyzing.) Carrying out and/or reporting on actions decided upon.

2 **Analyzing:** Examining and determining the value of data, which sometimes results in a need to choose the best course of action to be taken.

3. **Compiling:** Gathering information about data, people, or things and putting it together in proper order. Frequently involves reporting and/or carrying out activities indicated by the information.

4 **Computing:** Performing arithmetic operations, reporting results, or carrying out activities as indicated by the results. Does not include counting.

5 **Copying:** Transcribing data (rewriting from another copy or from shorthand notes), or posting data (entering it in ledgers or account books).

6 **Comparing:** Judging data, people, or things according to what can be readily observed such as what they do, how they look or how they are made, and whether they are usual or differ from the usual.

7
8 **No significant relationship.**

PEOPLE

People: Human beings; also animals when they are given care and consideration similar to that given human beings.

LEVELS OF INVOLVEMENT WITH PEOPLE

0 **Mentoring:** Dealing with individuals in terms of their total personality to advise or counsel them on problems by applying principles of law, science, medicine, religion, or other professions.

1 **Negotiating:** Exchanging ideas, information, and opinions with others to make policies, plan programs, and/or arrive jointly at decisions, conclusions, or solutions.

2 **Instructing:** Teaching subject matter to others, or training others (including animals) through explaining, demonstrating, or supervised practice; using knowledge gained through specialized training, such as in medicine, law, or engineering, to make recommendations.

3 **Supervising:** Determining or explaining work procedures for a group of workers, assigning tasks to them, encouraging them to get along well with each other and to do their best work.

4 **Diverting:** Amusing others.

5 **Persuading:** Influencing others in favor of a product, service, or opinion.

6 **Speaking-Signaling:** Talking with and/or signaling people to give or exchange information. Includes assigning tasks or giving directions to helpers or assistants.

7 **Serving:** Attending to the requests or needs of people or animals. Carrying out the wishes of people, either expressed or understood without being expressed. Immediate response is involved.

8 **No significant relationship.**

THINGS

Things: Lifeless objects as distinguished from people or animals, such as substances or materials, machines, tools, equipment, or products. They can be touched or handled and have such characteristics as shape, form, weight, texture, etc.

LEVELS OF INVOLVEMENT WITH THINGS

0 **Setting Up:** Adjusting machines or equipment by replacing or altering tools, jigs, fixtures, and attachments to prepare them to perform their functions, change their performance, or restore their proper functioning if they break down. This group includes workers who set up one or a number of machines for other workers or who set up and personally operate a variety of machines.

1 **Precision Working:** Using parts of the body, usually with tools or work aids, to work, guide, or place objects or materials in such a way that rigid standards for the product or process will be met. Considerable judgment on the part of the precision worker is required in selecting the right tools, objects, or material and correctly applying the tool to the task.

2 **Operating-Controlling:** Starting, stopping, controlling, and adjusting the progress of machines or equipment designed to manufacture and/or process objects or materials. Operating involves setting up the machine and adjusting it or the material as the work progresses. Controlling equipment involves watching gages, dials, etc.; and turning valves and other devices to control such factors as temperature, pressure, flow of liquids, speed of pumps, and reactions of materials. Frequent adjustments of the equipment may be needed.

3 **Driving-Operating:** Starting, stopping, and controlling the actions of machines or equipment which must be steered or guided to manufacture, process, and/or move things or people. Involves such activities as watching gages and dials; estimating distances, and determining speed and direction of other objects; turning cranks and wheels; pushing clutches or brakes; and pushing or pulling gear lifts or levers. Includes such machines as cranes, conveyor systems, tractors, paving machines, hoisting machines, and equipment for loading large industrial furnaces. Does not include machines powered by hand such as handtrucks and dollies, or power assisted machines like electric wheelborrows or electric handtrucks.

4 **Manipulating:** Using tools, special devices, or parts of the body to work, move, guide, or place objects or materials. Involves the use of some judgment with regard to the degree of accuracy needed and in selecting the proper tool, object, or material, but such judgments are usually not difficult to make.

5 **Tending:** Starting, stopping, and watching the operation of machines and equipment. Involves adjusting materials or controls of the machine, such as changing guides, adjusting timers and temperature gages, turning valves to allow flow of materials, and flipping switches in response to lights. Little judgment is involved in making these adjustments.

6 **Feeding-Offbearing:** Throwing, dumping, putting, or feeding materials into or removing them from machines or equipment which may be automatic or may be tended or operated by other workers.

7 **Handling:** Using parts of the body, handtools, and/or special devices to work, move, or carry objects or materials. Permits little or no judgment in meeting standards or in selecting the proper tool, object, or material.

8 **No significant relationship.**

Appendix D

Temperaments

A person's ability to adjust to different types of conditions or situations reflects his temperament – his general nature, make-up, or disposition. "Temperaments," as used in this publication, are identified in terms of the different kinds of working conditions or situations to which the worker must adjust. The *Dictionary of Occupational Titles* (*DOT*) (Volume II, page 654) identifies 12 different temperaments which are important for successful job performance. These differ from job to job. The Qualifications Profile in each of the 114 Worker Trait Groups included in this *Guide*, lists those temperaments which apply to that particular group of jobs.

Whenever you explore a Worker Trait Group or a specific job, you should attempt to understand your own temperaments in terms of your ability to adjust to the conditions or situations they demand. Below is a complete list of the 12 different temperaments which have been identified:

1. Performing a variety of duties which may often change.
2. Repeating activities or tasks of short duration according to a required routine procedure or sequence.
3. Doing things only under specific instructions, allowing little or no room for independent action or judgment in working out job problems.
4. Directing, controlling, and planning an entire activity or activities of others.
5. Dealing with people in actual job duties beyond giving and receiving instructions.
6. Working alone and away from other workers, although the work may be related to work other people are doing.
7. Influencing people's opinions, attitudes, or judgments about ideas or things.
8. Working well under pressure when faced with critical or unexpected situations or when taking necessary risks.
9. Rating information by using personal judgment.

0. Rating information using standards that can be measured or checked.

X. Interpreting feelings, ideas, or facts from a personal point of view.

Y. Working within precise limits or standards of accuracy.

Appendix E

Interests

Most people have interest in or preference for certain types of work activity. The *Dictionary of Occupational Titles* (Volume II, page 654) identifies 10 broad types of work activity which fall into five pairs of opposites. If a person prefers one of the activities in a pair, he usually dislikes or rejects the other. For example, a person may prefer dealing with things and objects rather than with people and the communication of ideas. On the other hand, he may prefer just the opposite: working with people and the communication of ideas rather than with things and objects. The statements used in this *Guide* to describe work activities have been taken from the *DOT* but have been rewritten to make them easier to understand and use.

All of the work activity statements used in this *Guide* are listed below. They are always listed in pairs. Each pair is shown twice: once with one work activity statement listed first and once with the order reversed. Thus, item 6 is the reverse of item 1; item 7 is the reverse of item 2, etc.

Under the Qualifications Profile in each of the 114 Worker Trait Groups included in this *Guide,* one or more pairs of work activities are listed. They are always listed so that the first work activity in the pair is preferred by workers in the group and the second work activity is usually disliked or rejected.

1. Activities dealing with things and objects.
2. Activities involving business contact with people.
3. Activities of a routine, definite, organized nature.
4. Activities which involve direct personal contact to help people or deal with them for other purposes.
5. Activities which bring recognition or appreciation by others.
6. Activities concerned with people and the communication of ideas.
7. Activities of a scientific and technical nature.
8. Activities of an unusual, indefinite nature which require creative imagination.
9. Activities which are nonsocial and involve the use of machines, processes, or methods.

0. Activities which bring personal satisfaction from working on or producing things.

Appendix F

Specific Vocational Preparation

Most jobs require that a worker receive specific training either before being employed or before starting to work following employment or promotion. Training may vary from a very short period, during which a task is explained or demonstrated, to a period of 10 years or more. The *Dictionary of Occupational Titles* (*DOT*) (Volume II, pages 652-653) identifies different ways specific vocational preparation may be obtained and provides a standard list of statements to show training time needed.

Training may be obtained in any of several ways, including:

1. Vocational education (such as high school business or shop courses and related training, business college, technical school, art school, some military training programs, or college courses which are related to a career).
2. Apprentice training (on-the-job training and related instruction usually lasting from two to four years).
3. In-plant training (conducted by an employer as an organized training program).
4. On-the-job training (serving as a learner or trainee under the instruction of a qualified worker).
5. Experience in related jobs (working in less responsible jobs or in others which lead to the job in question).

Under the Qualifications Profile in each of the 114 Worker Trait Groups described in this *Guide,* the training time necessary for jobs in the group is shown by one or more of the statements listed below. If more than one statement is included in the profile, it is because different jobs within the group require different amounts of training time.

1. Short duration only.
2. Anything beyond short demonstration up to and including 30 days.
3. Over 30 days up to and including 3 months.
4. Over 3 months up to and including 6 months.
5. Over 6 months up to and including 1 year.
6. Over 1 year up to and including 2 years.
7. Over 2 years up to and including 4 years.
8. Over 4 years up to and including 10 years.
9. Over 10 years.

Aptitudes

"Aptitude" is the ability to do something or to learn to do it. When we say that a person has the aptitude to perform a particular job, we mean that he has either the knowledge or skill to perform it or the ability to acquire (learn or develop) such knowledge and skill.

Some aptitudes reflect the ability to acquire and to use knowledge. These aptitudes indicate general or specialized learning and reasoning ability, such as the ability to solve difficult problems. Other aptitudes reflect the ability to develop and use skills which are primarily physical in nature. Such aptitudes indicate general or specialized physical ability, such as the ability to do fine work using handtools.

Individuals differ from one another in aptitude just as they differ in looks, or in height, weight, or interests. Thus, when making career decisions and related educational plans, it is important to know as much as possible about your aptitudes. You may be able to learn some things quite easily, other things with some difficulty, while others may be beyond your ability. For example, only a few acquire the ability to become a basketball star or get the lead in a class play, and not everyone can get an A in physics. It is possible for students, with the help of their school counselor, to examine their school records and to take one or more aptitudes tests. This information can then be used to help them estimate and understand their aptitudes.

The Dictionary of Occupational Titles, (*DOT*) (Volume II, page 653) identifies 11 different aptitudes which are important to job success. Different jobs require different combinations of these aptitudes. Page 2 of each Worker Trait Group in this *Guide* identifies the aptitudes which are important for the jobs in that group and also indicates the degree (amount) of each aptitude needed. Below is a complete list of the 11 different aptitudes which have been identified.

G – INTELLIGENCE: general learning ability, including being able to follow instructions, to reason and make judgments, and to do well in school.

V – VERBAL: ability to understand meanings of words and ideas, and to present information effectively.

N – NUMERICAL: ability to perform arithmetical operations quickly and accurately.

S – SPATIAL: ability to look at flat drawings or pictures and to visualize (understand) how they would look as solid objects with height, width, and depth.

P – FORM PERCEPTION: ability to see detail in objects or drawings and to recognize slight differences in shapes or shadings.

Q – CLERICAL PERCEPTION: ability to see details and to recognize errors in numbers, spelling, and punctuation in written materials, charts, or tables.

K – MOTOR COORDINATION: ability to coordinate the use of eyes and hands or fingers rapidly and accurately to perform a task.

F – FINGER DEXTERITY: ability to move fingers and to handle small objects rapidly and accurately.

M – MANUAL DEXTERITY: ability to work easily and skillfully with the hands.

E – EYE-HAND-FOOT COORDINATION: ability to coordinate the movements of the hands and feet according to visual signals and directions.

C – COLOR DISCRIMINATION: ability to recognize likenesses and differences in colors and shades, to identify or match specific colors, and to select color combinations which go well together.

Appendix H

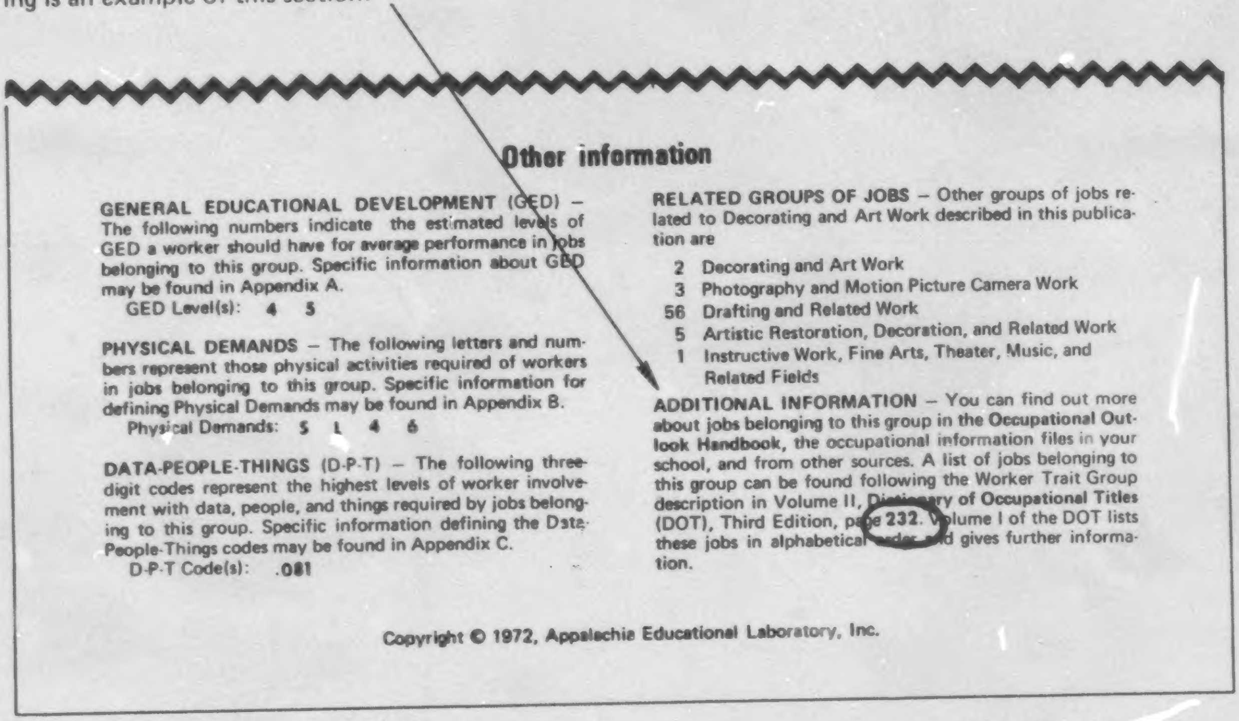
How To Use The Dictionary of Occupational Titles DOT

The *Dictionary of Occupational Titles (DOT)* is made up of two volumes. Both volumes may be used to add to the information contained in the *Guide For Exploring Careers Through Worker Traits*. Volume II, *Occupational Classification*, is used to obtain a complete list of the jobs included in each Worker Trait Group. Volume I, *Definitions of Titles*, is used to obtain descriptions of the jobs in the Worker Trait Group lists. This explanation of the *DOT* will not attempt to define all the various parts and uses of Volumes I and II. Instead, it will be limited to explaining how to use these volumes for expanding the information contained in the *Guide*.

How to Use Volume II -- Occupational Classification

You should use Volume II after you have identified a Worker Trait Group in the *Guide* that you wish to explore. Volume II will provide you with a complete list of jobs for any particular Worker Trait Group.

The "Additional Information" section on the back page of each Worker Trait Group in the *Guide* gives a page number which is used to find the original Worker Trait Group as it appears in Volume II. The following is an example of this section:



Other information

GENERAL EDUCATIONAL DEVELOPMENT (GED) – The following numbers indicate the estimated levels of GED a worker should have for average performance in jobs belonging to this group. Specific information about GED may be found in Appendix A.

GED Level(s): 4 5

PHYSICAL DEMANDS – The following letters and numbers represent those physical activities required of workers in jobs belonging to this group. Specific information for defining Physical Demands may be found in Appendix B.

Physical Demands: 5 L 4 6

DATA-PEOPLE-THINGS (D-P-T) – The following three-digit codes represent the highest levels of worker involvement with data, people, and things required by jobs belonging to this group. Specific information defining the Data-People-Things codes may be found in Appendix C.

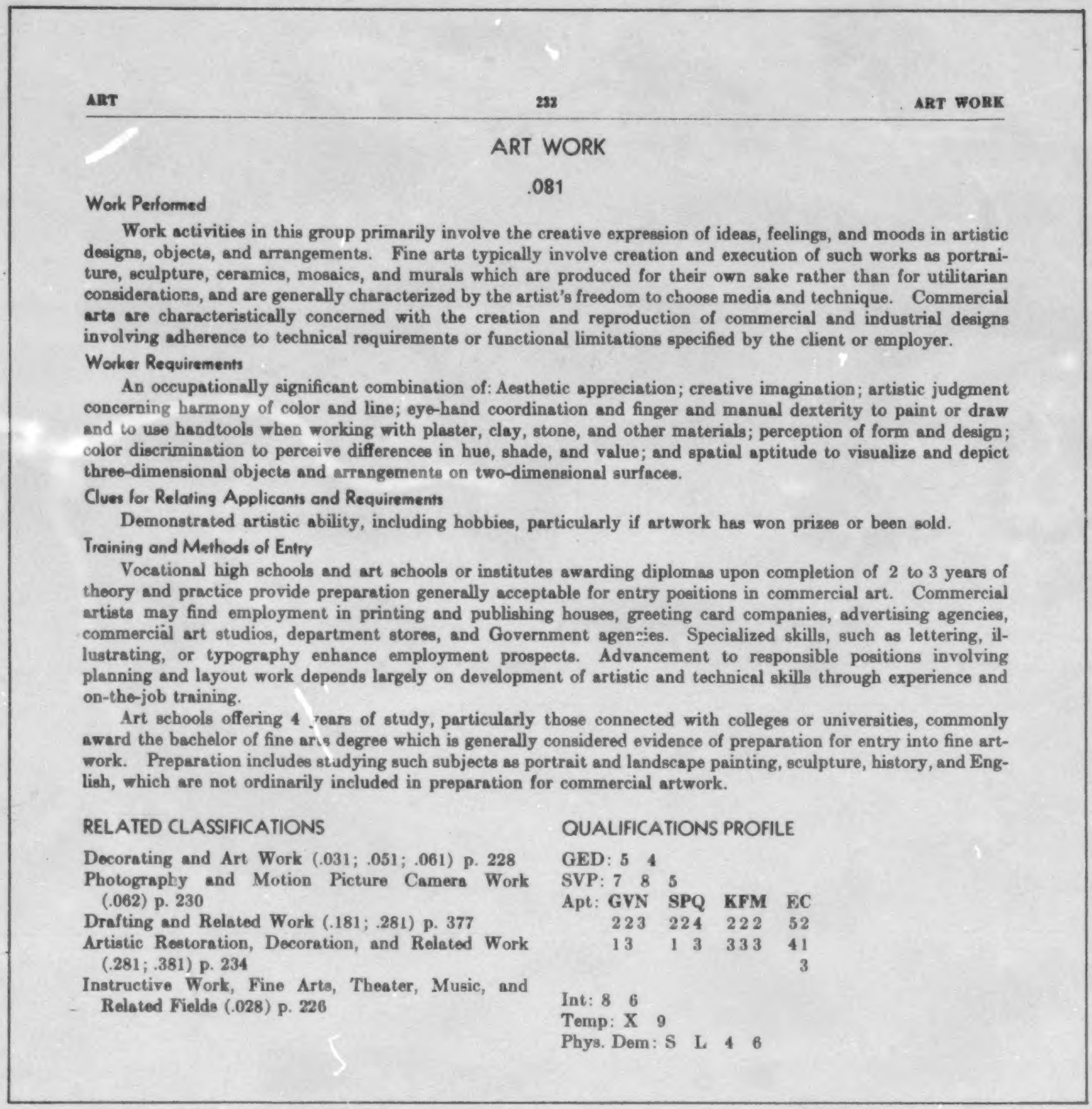
D-P-T Code(s): .081

RELATED GROUPS OF JOBS – Other groups of jobs related to Decorating and Art Work described in this publication are

2	Decorating and Art Work
3	Photography and Motion Picture Camera Work
56	Drafting and Related Work
5	Artistic Restoration, Decoration, and Related Work
1	Instructive Work, Fine Arts, Theater, Music, and Related Fields

ADDITIONAL INFORMATION – You can find out more about jobs belonging to this group in the **Occupational Outlook Handbook**, the occupational information files in your school, and from other sources. A list of jobs belonging to this group can be found following the Worker Trait Group description in Volume II, **Dictionary of Occupational Titles** (DOT), Third Edition, page **232**. Volume I of the DOT lists these jobs in alphabetical order and gives further information.

On this page in Volume II, you will find the Worker Trait Group description in its original form as the following example shows:



ART 232 ART WORK

ART WORK

.081

Work Performed

Work activities in this group primarily involve the creative expression of ideas, feelings, and moods in artistic designs, objects, and arrangements. Fine arts typically involve creation and execution of such works as portraiture, sculpture, ceramics, mosaics, and murals which are produced for their own sake rather than for utilitarian considerations, and are generally characterized by the artist's freedom to choose media and technique. Commercial arts are characteristically concerned with the creation and reproduction of commercial and industrial designs involving adherence to technical requirements or functional limitations specified by the client or employer.

Worker Requirements

An occupationally significant combination of: Aesthetic appreciation; creative imagination; artistic judgment concerning harmony of color and line; eye-hand coordination and finger and manual dexterity to paint or draw and to use handtools when working with plaster, clay, stone, and other materials; perception of form and design; color discrimination to perceive differences in hue, shade, and value; and spatial aptitude to visualize and depict three-dimensional objects and arrangements on two-dimensional surfaces.

Clues for Relating Applicants and Requirements

Demonstrated artistic ability, including hobbies, particularly if artwork has won prizes or been sold.

Training and Methods of Entry

Vocational high schools and art schools or institutes awarding diplomas upon completion of 2 to 3 years of theory and practice provide preparation generally acceptable for entry positions in commercial art. Commercial artists may find employment in printing and publishing houses, greeting card companies, advertising agencies, commercial art studios, department stores, and Government agencies. Specialized skills, such as lettering, illustrating, or typography enhance employment prospects. Advancement to responsible positions involving planning and layout work depends largely on development of artistic and technical skills through experience and on-the-job training.

Art schools offering 4 years of study, particularly those connected with colleges or universities, commonly award the bachelor of fine arts degree which is generally considered evidence of preparation for entry into fine artwork. Preparation includes studying such subjects as portrait and landscape painting, sculpture, history, and English, which are not ordinarily included in preparation for commercial artwork.

RELATED CLASSIFICATIONS

Decorating and Art Work (.031; .051; .061) p. 228
Photography and Motion Picture Camera Work (.062) p. 230
Drafting and Related Work (.181; .281) p. 377
Artistic Restoration, Decoration, and Related Work (.281; .381) p. 234
Instructive Work, Fine Arts, Theater, Music, and Related Fields (.028) p. 226

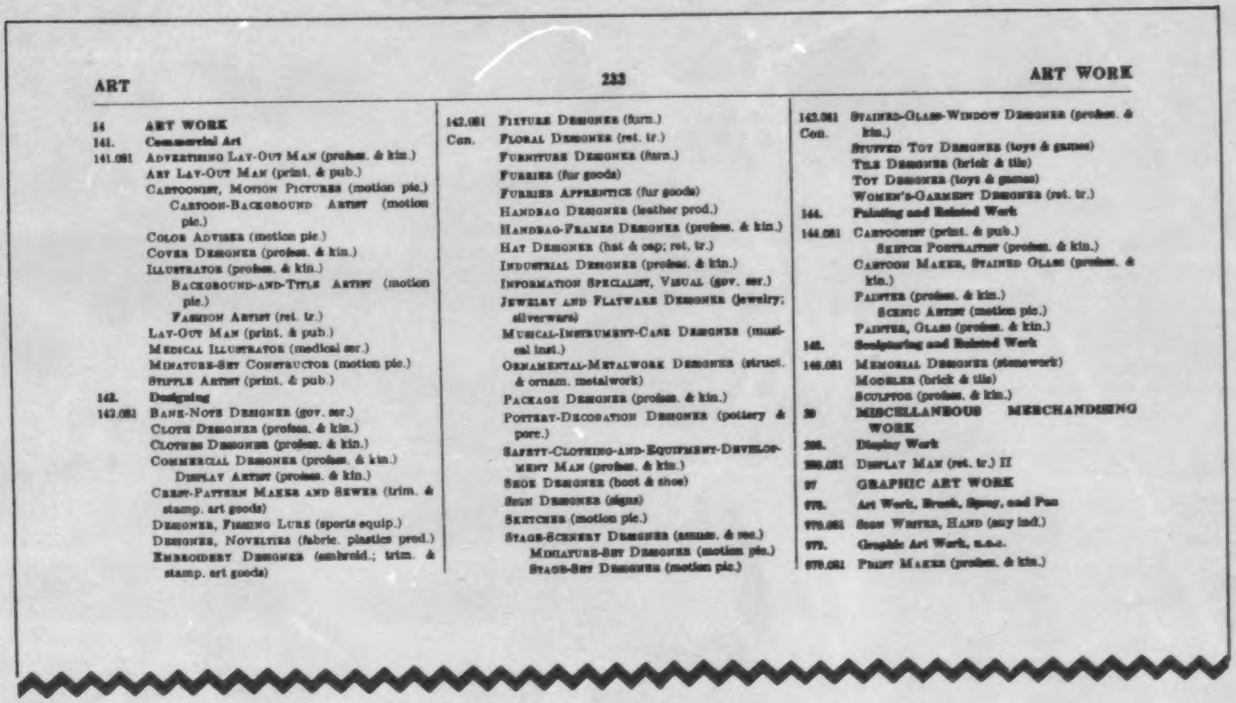
QUALIFICATIONS PROFILE

GED: 5 4
SVP: 7 8 5

Apt:	GVN	SPQ	KFM	EC
	223	224	222	52
	13	1 3	333	41
				3

Int: 8 6
Temp: X 9
Phys. Dem: S L 4 6

Notice that the sections are much the same as those in the Worker Trait Groups of the *Guide*. By comparing the two you can tell that the information is the same in Volume II and the *Guide*; however, the Worker Trait Group in the *Guide* is easier to understand because it has been rewritten in a less technical language. On the page or pages immediately following the description, you will find a list of the jobs related to each Worker Trait Group as shown here:



ART

233

ART WORK

14 **ART WORK**
141. **Commercial Art**
141.081 Advertising Lay-Out Man (profess. & kin.)
Art Lay-Out Man (print. & pub.)
Cartoonist, Motion Pictures (motion pic.)
Cartoon-Background Artist (motion pic.)
Color Adviser (motion pic.)
Cover Designer (profess. & kin.)
Illustrator (profess. & kin.)
Background-and-Title Artist (motion pic.)
Fashion Artist (ret. tr.)
Lay-Out Man (print. & pub.)
Medical Illustrator (medical ser.)
Miniature-Set Constructor (motion pic.)
Stipple Artist (print. & pub.)
142. **Designing**
142.081 Bank-Note Designer (gov. ser.)
Cloth Designer (profess. & kin.)
Clothes Designer (profess. & kin.)
Commercial Designer (profess. & kin.)
Display Artist (profess. & kin.)
Crest-Pattern Maker and Sewer (trim. & stamp. art goods)
Designer, Fishing Lure (sports equip.)
Designer, Novelties (fabric. plastics prod.)
Embroidery Designer (embroid.; trim. & stamp. art goods)

142.081 Fixture Designer (furn.)
Con. Floral Designer (ret. tr.)
Furniture Designer (furn.)
Furrier (fur goods)
Furrier Apprentice (fur goods)
Handbag Designer (leather prod.)
Handbag-Frames Designer (profess. & kin.)
Hat Designer (hat & cap; ret. tr.)
Industrial Designer (profess. & kin.)
Information Specialist, Visual (gov. ser.)
Jewelry and Flatware Designer (jewelry; silverware)
Musical-Instrument-Case Designer (musical inst.)
Ornamental-Metalwork Designer (struct. & ornam. metalwork)
Package Designer (profess. & kin.)
Pottery-Decoration Designer (pottery & porc.)
Safety-Clothing-and-Equipment-Development Man (profess. & kin.)
Shoe Designer (boot & shoe)
Sign Designer (signs)
Sketcher (motion pic.)
Stage-Scenery Designer (amuse. & rec.)
Miniature-Set Designer (motion pic.)
Stage-Set Designer (motion pic.)

142.081 Stained-Glass-Window Designer (profess. & kin.)
Con. Stuffed Toy Designer (toys & games)
Tile Designer (brick & tile)
Toy Designer (toys & games)
Women's-Garment Designer (ret. tr.)
144. **Painting and Related Work**
144.081 Cartoonist (print. & pub.)
Sketch Portraitist (profess. & kin.)
Cartoon Maker, Stained Glass (profess. & kin.)
Painter (profess. & kin.)
Scenic Artist (motion pic.)
Painter, Glass (profess. & kin.)
148. **Sculpturing and Related Work**
148.081 Memorial Designer (stonework)
Modeler (brick & tile)
Sculptor (profess. & kin.)
29 **MISCELLANEOUS MERCHANDISING WORK**
298. **Display Work**
298.081 Display Man (ret. tr.) II
97 **GRAPHIC ART WORK**
970. **Art Work, Brush, Spray, and Pen**
970.081 Sign Writer, Hand (any ind.)
979. **Graphic Art Work, n.e.c.**
979.081 Print Maker (profess. & kin.)

Looking at this list you will notice some two-, three-, and six-digit numbers in front of some of the headings or titles. These code numbers are part of the occupational classification system used in the *DOT* to code job titles and to organize jobs into related groups.

Each job definition has a code number of six digits. Each of the digits has a special meaning for users of the *Dictionary of Occupational Titles (DOT)*. The first three digits of the code organize all jobs into an Occupational Group Arrangement on the basis of a combination of things, including the products or services provided and the processes and materials used. The last three digits of the code indicate the job's level of involvement with Data, People, Things, as explained in Appendix C of this *Guide*.

The first digit places the job into an occupation **category**; the second digit places it into a **division** within the category; and the third digit places it within the division into a sub-division called a three-digit group. There are nine occupational categories which have the following code numbers (first digit of the *DOT* code) and names:

0
1 Professional, technical, and managerial occupations
2 Clerical and sales occupations
3 Service occupations
4 Farming, fishery, forestry, and related occupations
5 Processing occupations
6 Machine trades occupations
7 Bench work occupations
8 Structural work occupations
9 Miscellaneous occupations

As an example, the code for the job of ILLUSTRATOR in the job list above is 141.081. The first digit, 1, places this sample occupation in category 1, which together with category 0, includes professional, technical, and managerial occupations. This **category** includes occupations concerned with such fields as art, science, law, business relations, and administrative, managerial, and technical work. Most of these occupations require education beyond high school (usually in a college or university, junior college, or technical school).

When the second digit, 4, is combined with the first digit, 1, it places the job of ILLUSTRATOR in the division called Art Work, which is coded 14. This **division** includes occupations concerned with producing original artistic work and the teaching of the fine arts.

When the third digit, 1, is combined with the first two digits, the code 141 places the sample job in the three-digit group called Commercial Art. This **group** includes occupations concerned with producing art work to promote sales of products or services, to influence people's opinions on a particular subject, or to illustrate subject matter.

The classification and code structure of the *Dictionary of Occupational Titles (DOT)* contains the nine **categories** listed above. These have been divided into 84 two-digit **divisions** and 603 three-digit **groups.** Any job that exists today or that is created in the future can be classified and coded to fit into this system in the same way as the sample job ILLUSTRATOR. The *DOT* system, showing **categories, divisions,** and **groups** is listed on pages 3 through 24 of *DOT* Volume II, *Occupational Classification*. The entire occupational classification system, including information such as that used above to describe ILLUSTRATOR, is listed on pages 33 through 213 of Volume II. As mentioned earlier, the last three digits of the six-digit *DOT* code indicate the job's level of involvement with Data, People, Things. These are explained in Appendix C of this *Guide*.

How to Use Volume I -- Definitions of Titles

After you have referred to the Worker Trait Group job list in Volume II, you may want to read the descriptions of some of the job titles contained in the list. These descriptions are found in Volume I. To use this volume, you will need to know how it is arranged, and what it contains.

Volume I is an alphabetical arrangement of job titles and their descriptions. The alphabetical order which is used in the *DOT* is based on the full job title being considered as a single word. This type of alphabetizing might cause you to overlook some job titles because it often separates two or more job titles beginning with the same word. As shown below, the job titles DIE PRESSER, DIE SINKER, and DIE TRIPPER are separated by titles that do not begin with the word die. The following list will give you some idea of the type of alphabetizing used in Volume I.

DIE PRESSER
DIESEL-ENGINE ERECTOR
DIESEL MECHANIC
DIE SINKER
DIETARY CONSULTANT
DIETICIAN
DIE TRIPPER

Usually the job title used in Volume I is the same as the name by which the job is commonly known. This is not always true, however. Some job titles have been changed or inverted (the words put in reverse order) so that similar jobs are kept together in the *DOT*, or for other reasons. Here are three illustrations:

1. Sometimes the titles of jobs in a specific craft or group have been inverted in order to keep them together. Examples:

   CARPENTER, MAINTENANCE
   CARPENTER, ROUGH
   CARPENTER, STAGE
   CARPENTER, ARCHITECTURAL
   CARPENTER, MECHANICAL

2. Sometimes titles which contain words that modify the meaning of the main titles are inverted in order to keep them together. Examples:

   BAKER, HEAD
   BAKER, SECOND

3. Sometimes titles have modifiers added to distinguish one title from another. Examples:

   APPRAISER, ART
   APPRAISER, AUTOMOBILE
   APPRAISER, REAL ESTATE
   SALESMAN, ART SUPPLIES
   SALESMAN, MARINE SUPPLIES

If you do not find the job you are seeking in the *DOT*, first make sure that you are using the alphabetizing system correctly; next, see if you can find it by inverting the words in the title; and, finally, see if you can identify the job by using another title.

There are 21,741 jobs described in Volume I under 35,550 job titles. Of this total, 13,809 are alternate titles. Alternate titles are shown when a job is known by different names in various parts of the country. You will find four basic types of job title entries in Volume I: main title entries, alternate title entries, undefined related title entries, and defined related title entries.

Main title. The main title is the name by which the job is most widely known. The main title entry is the most frequent type of entry, as illustrated by the following example:

> **ILLUSTRATOR** (profess. & kin.) 141.081. **commercial artist, illustrating; graphic artist.** Draws and paints illustrations for advertisements, books, magazines, posters, billboards, and catalogs: Studies design layout or proposed sketch, and selects technique, such as pen and ink, watercolor, pastels, scratchboard, tempera, or oils, best suited to produce desired visual effect and to conform with printing method specified. Executes design, using selected technique and rendering details from memory, live models, manufactured products, or reference materials. May be designated according to specialization as ADVERTISING ILLUSTRATOR; BOOK ILLUSTRATOR; CATALOG ILLUSTRATOR; MAGAZINE ILLUSTRATOR; POSTER ARTIST.

Alternate title. An alternate title is a name by which a job may be known in addition to its main title. The alternate title entry will refer you to the main title entry for the job description as shown in the example below:

> **COMMERCIAL ARTIST, ILLUSTRATING** (profess. & kin.) see ILLUSTRATOR.

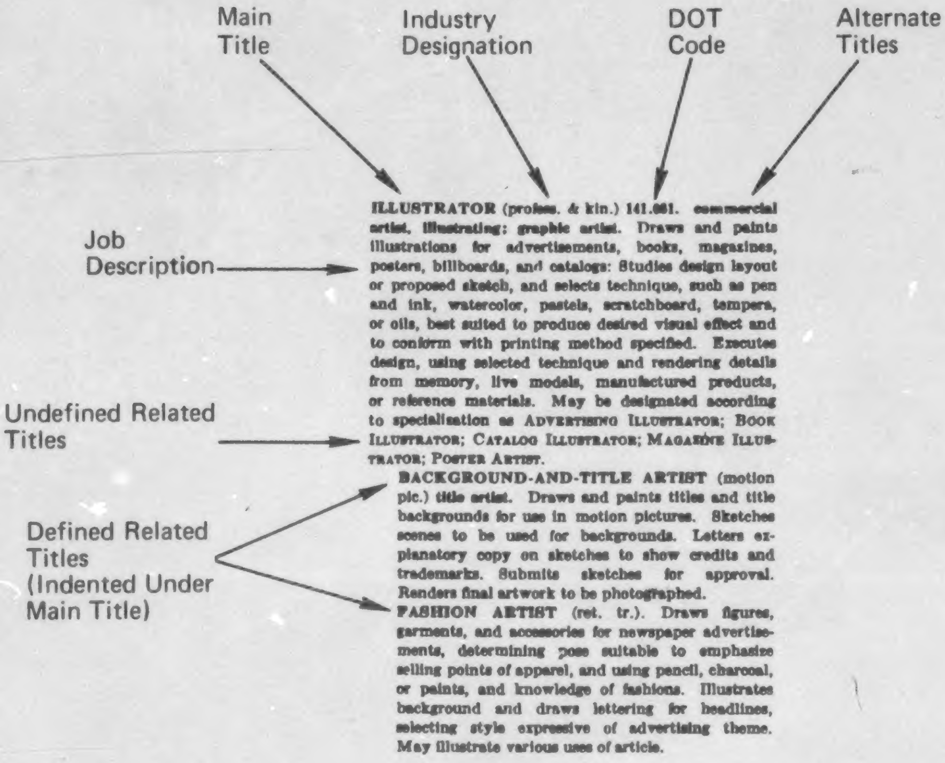
Undefined related title. An undefined related title identifies a specialization of the main titled job. It is not defined because its only difference from the main job is obvious from its title. The undefined related title entry will refer you to the main title entry, as shown below:

ADVERTISING ILLUSTRATOR (profess. & kin.) *see* ILLUSTRATOR.

A defined related title. A defined related title identifies a specialization of the main titled job which must be defined. This is done in an indented paragraph under the main title entry. As indicated below, the defined related title entry refers you to the main title entry, where full information is available by reading both the main title entry and the indented paragraph which further describes the related title.

FASHION ARTIST (ret. [illegible] *see under* ILLUSTRATOR (profess. & kin.).

The job title entries contain a wealth of information in a condensed, capsule form. The following is a typical main title entry, including undefined and defined related titles, marked to show its various parts:



ILLUSTRATOR (profess. & kin.) 141.081. **commercial artist, illustrating; graphic artist.** Draws and paints illustrations for advertisements, books, magazines, posters, billboards, and catalogs: Studies design layout or proposed sketch, and selects technique, such as pen and ink, watercolor, pastels, scratchboard, tempera, or oils, best suited to produce desired visual effect and to conform with printing method specified. Executes design, using selected technique and rendering details from memory, live models, manufactured products, or reference materials. May be designated according to specialization as ADVERTISING ILLUSTRATOR; BOOK ILLUSTRATOR; CATALOG ILLUSTRATOR; MAGAZINE ILLUSTRATOR; POSTER ARTIST.

BACKGROUND-AND-TITLE ARTIST (motion pic.) **title artist.** Draws and paints titles and title backgrounds for use in motion pictures. Sketches scenes to be used for backgrounds. Letters explanatory copy on sketches to show credits and trademarks. Submits sketches for approval. Renders final artwork to be photographed.

FASHION ARTIST (ret. tr.). Draws figures, garments, and accessories for newspaper advertisements, determining pose suitable to emphasize selling points of apparel, and using pencil, charcoal, or paints, and knowledge of fashions. Illustrates background and draws lettering for headlines, selecting style expressive of advertising theme. May illustrate various uses of article.

The descriptive material contained in the title entries includes information on WHAT gets done, WHY it gets done, and HOW it gets done, as shown by the following example:

CATALOGER (library) 100.388. catalog librarian; descriptive cataloger. Compiles information on library materials, such as books and periodicals, and prepares catalog cards to identify materials and to integrate information into library catalog: Verifies author, title, and classification number. . . .

WHAT

WHY

HOW

The descriptions also contain or suggest other types of information such as those shown in the examples below:

1. Functions performed by the worker as related to Data-People-Things.

PHYSICIST, THEORETICAL (profess. & kin.) 023.088. Interprets results of experiments in physics, formulates theories consistent with data obtained, and predicts results of experiments designed to detect and. . . .

SYNTHESIZING

2. Significant aptitudes, interests, and temperaments that are required by the job.

(interest)
PEOPLE AND THE COMMUNICATION OF IDEAS

EDITORIAL WRITER (print. & pub.) 132.088. Writes comments on topics of current interest to stimulate or mold public opinion in accordance with viewpoints and policies of publication . . .

(aptitude)
VERBAL ABILITY

(temperaments)
INFLUENCING PEOPLE'S OPINIONS, ATTITUDES, OR JUDGMENTS ON IDEAS
INTERPRETING FEELINGS, IDEAS, AND FACTS IN TERMS OF PERSONAL VIEWPOINT

3. Critical physical demands and working conditions.

(physical demands)
CLIMBING AND BALANCING

HIGH CLIMBER (logging) 949.781. climber; high rigger; rigger; squirrel man; topper. Installs blocks (pulleys), cables, and other rigging tackle on tree to be used for yarding logs from forest: Climbs tree, using climbing spurs and safety rope . . .

(working conditions)
OUTSIDE, HAZARDS

How to Locate Worker Trait Groups for Specific Job Titles

In using the Worker Trait Groups for career exploration, it is important that you be able to: (1) identify the Worker Trait Group to which any specific job belongs, and (2) identify the jobs belonging to any specific Worker Trait Group. The section "How to Use Volume II – Occupational Classification" on the first page of this Appendix indicated that Volume II of the *DOT* lists the jobs belonging to each Worker

Trait Group and described how to go from the *Guide* to the *DOT* list. This section will describe two different ways to identify the Worker Trait Group to which a specific job belongs. These methods are outlined below:

Method A:

1. The first step in this method is to identify the six-digit *DOT* code number for the specific job. Many times this code number is included with the information that you already have concerning the job. If this code is not known it can be found in the *Dictionary of Occupational Titles,* Volume I. The section "How to Use Volume I—**Definitions of Titles**" of this Appendix, describes how to use Volume I to locate job titles and code numbers.

2. The next step is to use the last three digits of the *DOT* code number with Table I of this Appendix. In the first column of Table I, locate the number that is the same as the last three digits of the *DOT* code number for the specific job. The *DOT* code numbers in the first column are listed in numerical sequence, beginning with .018 and ending with .887. In column two, across from the three digit number, the Worker Trait Group for that *DOT* code number is listed; in column three is the Worker Trait Group number used in the *Guide*; and in column four is the page number on which the Worker Trait Group is located in Volume II of the *DOT*. For example, if the specific job in question is CARTOONIST (144.081), the last three digits, .081, show the Worker Trait Group title to be "Art Work," the Worker Trait Group number, 4 (in the *Guide*), and the *DOT* Volume II page number, 232.

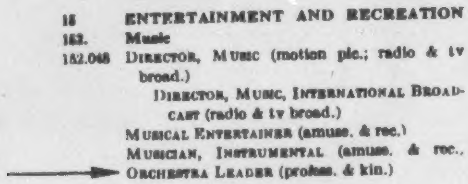
   Sometimes the same three digits will refer to more than one Worker Trait Group (see .048 in the first column of Table I). When this is true, ditto marks (") are used in the first column of Table I so you can easily see the repetition. When this happens, a third step is necessary, as follows:

3. Where the last three digits of the *DOT* code number are the same for more than one Worker Trait Group, you must check the list of jobs included in these Worker Trait Groups which are in Volume II. First, read the titles of the Worker Trait Groups belonging to the three digit *DOT* code and select the Worker Trait Group you feel would most likely include the job you are studying. Check the list of jobs for that Worker Trait Group in Volume II of the *DOT*. If the job is not in that list, check the list under the next most likely Worker Trait Group in the table. You may use this process until the job is found or you may just check each Worker Trait Group in the order that they appear in the table.

   The following is an example of how you locate a Worker Trait Group for a specific job where the *DOT* code is the same for more than one group. The code for the job of ORCHESTRA LEADER (152.048) refers to five Worker Trait Groups as illustrated below:

Last Three Digits of the DOT Code	Worker-Trait Group Title	Worker Trait Group Number	DOT, Vol II Page Number
.018	Journalism and Editorial Work	111	522
.021	Health Physics	86	464
.028	Instructive Work, Fine Arts, Theater, Music, and Related Fields	1	226
.031	Decorating and Art Work	2	228
.038	Journalism and Editorial Work	111	522
.048	Creative Entertainment Work, N.E.C.	62	390
"	Dramatics	63	392
"	Musical Work, Instrumental	64	394
"	Musical Work, Vocal	65	396
"	Rhythmics	66	398
.051	Decorating and Art Work	2	228
.061	Decorating and Art Work	2	228

Looking at these Worker Trait Group titles, a logical one to choose for ORCHESTRA LEADER would be Instrumental Musical Work. This Worker Trait Group is located in Volume II of the *DOT* on page 394. You would then check the list of jobs under this Worker Trait Group to make sure the job of ORCHESTRA LEADER is included as shown below:



15 ENTERTAINMENT AND RECREATION
152. Music
152.048 DIRECTOR, MUSIC (motion pic.; radio & tv broad.)
DIRECTOR, MUSIC, INTERNATIONAL BROADCAST (radio & tv broad.)
MUSICAL ENTERTAINER (amuse. & rec.)
MUSICIAN, INSTRUMENTAL (amuse. & rec.,
ORCHESTRA LEADER (profess. & kin.)

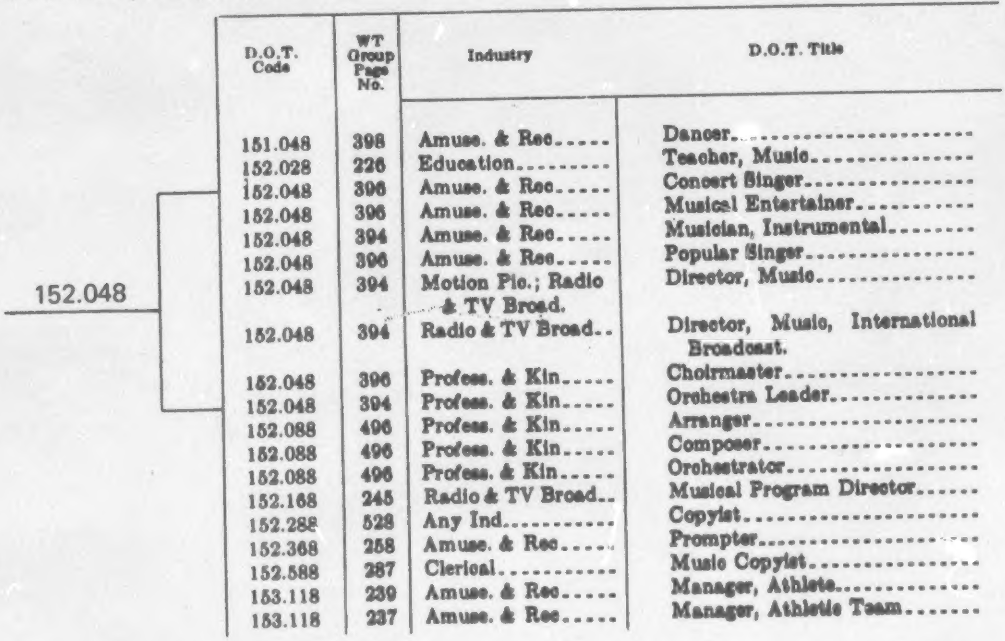
If ORCHESTRA LEADER had not been in the list, you would have had to check the table for the Worker Trait Group which would be the next most likely to include the job.

Method B:

1. The first step in this method is the same as Method A. You use Volume I of the *DOT* to identify the six-digit *DOT* code for the specific job.

2. The next step is to use the six-digit *DOT* code with the *Selected Characteristics of Occupations: A Supplement to the Dictionary of Occupational Titles, Third Edition* (U.S. Department of Labor, Bureau of Employment Security, Washington, D. C.: U. S. Government Printing Office, 1966). The first column in this Supplement lists all of the codes in numerical order from 001.081 to 979.887. Locate the six-digit *DOT* code number for the specific job in this first column. If there is more than one entry for this code, check column four for the job title. After you have located the correct entry, look in column two for the number that will identify the *DOT* Volume II page number of the Worker Trait Group to which the specific job belongs.

   For example, the code for ORCHESTRA LEADER, 152.048, is located on page 19 of the Supplement. Since there is more than one entry for this code, you must refer to column four to find the correct entry for the specific job title as shown below:



D.O.T. Code	WT Group Page No.	Industry	D.O.T. Title
151.048	398	Amuse. & Rec.....	Dancer.....................
152.028	226	Education..........	Teacher, Music...............
152.048	396	Amuse. & Rec.....	Concert Singer................
152.048	396	Amuse. & Rec.....	Musical Entertainer...........
152.048	394	Amuse. & Rec.....	Musician, Instrumental........
152.048	396	Amuse. & Rec.....	Popular Singer................
152.048	394	Motion Pic.; Radio & TV Broad.	Director, Music...............
152.048	394	Radio & TV Broad..	Director, Music, International Broadcast.
152.048	396	Profess. & Kin.....	Choirmaster.................
152.048	394	Profess. & Kin.....	Orchestra Leader.............
152.088	496	Profess. & Kin.....	Arranger....................
152.088	496	Profess. & Kin.....	Composer....................
152.088	496	Profess. & Kin.....	Orchestrator.................
152.168	245	Radio & TV Broad..	Musical Program Director......
152.288	528	Any Ind...........	Copyist.....................
152.368	258	Amuse. & Rec.....	Prompter....................
152.588	287	Clerical...........	Music Copyist................
153.118	239	Amuse. & Rec.....	Manager, Athlete.............
153.118	237	Amuse. & Rec.....	Manager, Athletic Team.......

The Worker Trait Group page number for this specific job is 394.

3. Use the page number you located in column two of the Supplement with Table 2 of this Appendix. This table lists the *DOT* Worker Trait Group page numbers in numerical order in its first column, and in the second column it lists the Worker Trait Group numbers used in this *Guide*. In column one of this table locate the page number you identified in step two. In column two. directly across from this page number, you will find the number of the Worker Trait Group in the *Guide* which contains the job you are studying.

For example, you identified page 394 as the Worker Trait Group page number for ORCHESTRA LEADER. Looking at Table 2, you will find that this page number identifies Worker Trait Group number 64 as shown below:

DOT II Page No.	WTG No.
390	62
392	63
394	64
396	65
398	66

This Worker Trait Group number will lead you to the correct Worker Trait Group description in the *Guide*.

TABLE 1. WORKER TRAIT GROUP ASSIGNMENTS BY DOT CODE

Last Three Digits of the DOT Code	Worker-Trait Group Title	Worker Trait Group Number	DOT, Vol II Page Number
.018	Journalism and Editorial Work	111	522
.021	Health Physics	86	464
.028	Instructive Work, Fine Arts, Theater Music, and Related Fields	1	226
.031	Decorating and Art Work	2	228
.038	Journalism and Editorial Work	111	522
.048	Creative Entertainment Work, N.E.C.	62	390
"	Dramatics	63	392
"	Musical Work, Instrumental	64	394
"	Musical Work, Vocal	65	396
"	Rhythmics	66	398
.051	Decorating and Art Work	2	228
.061	Decorating and Art Work	2	228
.062	Photography and Motion Picture Camera Work	3	230
.068	Journalism and Editorial Work	111	522
"	Promotion and Publicity	94	482
.081	Art Work	4	232
"	Engineering Research and Design	53	371
"	Scientific Research	87	466
.088	Creative Writing	112	524
"	Mathematics, Physical Sciences, and Related Research	88	468
"	Musical Work, Creative	100	496
"	Social Science, Psychological, and Related Research	31	294
.101	Surgery	89	471
.108	Guidance and Counseling	32	296
"	Legal and Related Work	78	425
"	Medical, Veterinary, and Related Services	90	473
.118	Administration	6	237
"	Contract Negotiating and Related Work	7	239
"	Legal and Related Work	78	425
.128	Industrial Training	41	335
"	Supervisory and Instructive Work (Nursing and Related Services)	40	333
"	Therapeutic and Related Work	91	475
"	Vocational Education	42	337
.130-.137	Supervisory Work (Farming, Logging, Manufacturing, Processing, Construction, Transportation, and Related Activities) – Working Supervisors	33	299
.138	Supervisory Work (Clerical, Sales, and Related Activities)	9	243
"	Supervisory Work (Farming, Logging, Manufacturing, Processing, Construction, Transportation, and Related Activities) – Non-Working Supervisor	34	305
"	Supervisory Work (Service and Related Activities)	85	461
.148	Radio Announcing and Related Work	67	400
.151	Sales Engineering	54	373
.158	Purchase and Sales Work	95	484
.168	Administration	6	237
"	Consultative and Business Services	11	248
"	Contract Negotiating and Related Work	7	239
"	Engineering, Scientific, and Technical Coordination	55	375
"	Flight and Relating Training	43	339
"	Interviewing, Information-Giving, and Related Work (Vocational, Educational, and Related Activities)	12	250

TABLE 1. WORKER TRAIT GROUP ASSIGNMENTS BY DOT CODE (Continued)

Last Three Digits of the DOT Code	Worker-Trait Group Title	Worker Trait Group Number	DOT, Vol II Page Number
.168	Investigating, Protecting, and Related Work	74	416
"	Legal and Related Work	78	425
"	Managerial Work	10	245
"	Purchase and Sales Work	95	484
"	Scheduling, Dispatching, Expediting, and Related Work	17	261
.181	Cropping, Animal Farming, Gardening, and Related Work	72	411
"	Drafting and Related Work	56	377
"	Materials Analysis and Related Work	75	418
"	Technical Work, Engineering and Related Fields	57	379
.187	Appraising and Investigating Work	76	420
"	Engineering and Related Work	58	381
188	Accounting, Auditing, and Related Work	13	252
"	Industrial Engineering and Related Work	59	383
"	Mathematics, Physical Sciences, and Related Research	88	468
"	Surveying, Prospecting, and Related Work	60	385
"	Technical Writing and Related Work	61	387
.208	Guidance and Counseling	32	296
.228	Animal Training	49	351
"	Business Training	8	241
"	Flight and Related Training	43	339
"	High School, College, University, and Related Education	44	341
"	Industrial Training	41	335
"	Kindergarten, Elementary School, and Related Education	45	343
"	Miscellaneous Instructive Work	46	345
"	Physical Education	47	347
"	Therapeutic and Related Work	91	475
.228	Training Services	48	349
"	Vocational Education	42	337
.248	Amusement and Entertainment Work, Physical	68	402
.251	Sales and Service Work	96	486
.258	Demonstration and Sales Work	97	488
.261	Costuming, Tailoring, and Dressmaking	35	308
.268	Consultative and Business Services	11	248
"	Flight and Related Training	43	339
"	Interviewing, Information-Giving, and Related Work (Vocational, Educational, and Related Activities)	12	250
"	Investigating, Protecting, and Related Work	74	416
"	Miscellaneous Amusement and Recreation Work	69	404
"	News Reporting and Related Work	113	526
"	Radio Announcing and Related Work	67	400
"	Secretarial and Related Work	18	263
.271	Beautician and Barbering Services	101	499
.280	Set Up and/or All-Round Machine Operating	80	430
.281	Artistic Restoration, Decoration, and Related Work	5	234
"	Cooking and Related Work	36	310
"	Craftsmanship and Related Work	37	312
"	Drafting and Related Work	56	377
"	Materials Analysis and Related Work	75	418
"	Technical Work, Engineering and Related Fields	57	379
.282	Motion Picture Projecting, Photographic Machine Work, and Related Activities	108	514
"	Radio and Television Transmitting and Receiving	109	516

TABLE 1. WORKER TRAIT GROUP ASSIGNMENTS BY DOT CODE (Continued)

Last Three Digits of the DOT Code	Worker-Trait Group Title	Worker Trait Group Number	DOT, Vol II Page Number
.283	Transporting and Test Driving	77	422
.284	Appraising and Investigating Work	76	420
.287	Appraising and Investigating Work	76	420
.288	Accounting, Auditing, and Related Work	13	252
"	Corresponding and Related Work	15	256
"	Industrial Engineering and Related Work	59	383
"	Surveying, Prospecting, and Related Work	60	385
"	Technical Writing and Related Work	61	387
"	Title and Contract Search and Analysis and Related Work	14	254
"	Translating, Editing, and Related Work	114	528
.328	Animal Training	49	351
.348	Amusement and Entertainment Work, Physical	68	402
.358	Demonstration and Sales Work	97	488
.361	Costuming, Tailoring, and Dressmaking	35	308
.363	Transportation Service Work	110	519
.364	Transportation Service Work	110	519
.368	Facilities, Services, and Movement Allocating and Expediting Work	19	265
"	Information Gathering, Dispensing, Verifying, and Related Work	16	258
"	Miscellaneous Amusement and Recreation	69	404
"	Nursing, X-Ray, and Related Services	92	477
"	Paying and Receiving (Banks and Other Establishments)	20	267
"	Secretarial and Related Work	18	263
371	Beautician and Barbering Services	101	499
.378	Nursing, X-Ray, and Related Services	92	477
.380	Set Up and/or All-Round Machine Operating	80	430
.381	Artistic Restoration, Decoration, and Related Work	5	234
"	Cooking and Related Work	36	310
"	Craftsmanship and Related Work	37	312
"	Materials Analysis and Related Work	75	418
.382	Inspecting and Stock Checking	22	271
"	Motion Picture Projecting, Photographic Machine Work, and Related Activities	108	514
"	Radio and Television Transmitting and Receiving	109	516
"	Typesetting, Reproducing, and Related Machine Work	23	274
.383	Delivery and Service Work, N.E.C.	98	491
"	Transporting and Test Driving	77	422
.384	Inspecting and Stock Checking	22	271
"	Technical Work, Science and Related Fields	73	413
.387	Inspecting and Stock Checking	22	271
.388	Classifying, Filing, and Related Work	24	276
"	Computing and Related Recording	26	280
"	Corresponding and Related Work	15	256
"	Stenographic and Related Work	25	278
.458	Demonstration and Sales Work	97	488
.463	Transportation Service Work	110	519
.468	Cashiering (Drug Stores, Theaters, Restaurants, and Related Establishments)	21	269
"	Customer Service Work, N.E.C.	102	501
"	Miscellaneous Amusement and Recreation Work	69	404
.478	Customer Service Work, N.E.C.	102	501
.483	Delivery and Service Work, N.E.C.	98	491

TABLE 1. WORKER TRAIT GROUP ASSIGNMENTS BY DOT CODE (Continued)

Last Three Digits of the DOT Code	Worker-Trait Group Title	Worker Trait Group Number	DOT, Vol II Page Number
.484	Inspecting and Stock Checking	22	271
"	Sorting, Inspecting, Measuring, and Related Work	27	282
.485	Sorting, Inspecting, Measuring, and Related Work	27	282
.487	Inspecting and Stock Checking	22	271
"	Sorting, Inspecting, Measuring, and Related Work	27	282
.488	Computing and Related Recording	26	280
.582	Typesetting, Reproducing, and Related Machine Work	23	274
.584-.587	Sorting, Inspecting, Measuring, and Related Work	27	282
.588	Routine Checking and Recording	29	289
"	Typing and Related Recording	28	287
.683	Sorting, Inspecting, Measuring, and Related Work	27	282
.684	Sorting, Inspecting, Measuring, and Related Work	27	282
.685	Sorting, Inspecting, Measuring, and Related Work	27	282
.687	Sorting, Inspecting, Measuring, and Related Work	27	282
.688	Routine Checking and Recording	29	289
.780	Set Up and Adjustment	81	433
.781	Precision Working	38	319
.782	Operating-Controlling	82	435
.848	Specialty Entertainment Work	70	406
.858	Selling and Related Work	99	493
.862	Switchboard Service	30	291
.863-867	Miscellaneous Customer Service Work	103	503
.868	Accommodating Work	104	505
"	Miscellaneous Personal Service Work (Food Serving, Portering, Valeting, and Related Activities)	105	507
"	Modeling and Related Work	71	408
"	Protecting and Related Work	79	427
"	Signaling and Related Work	50	354
"	Ushering, Messenger Service, and Related Work	106	509
.873	Miscellaneous Customer Service Work	103	503
.874	Animal Care	107	511
"	Miscellaneous Customer Service Work	103	503
.877	Animal Care	107	511
"	Miscellaneous Customer Service Work	103	503
.878	Child and Adult Care	93	479
"	Miscellaneous Personal Service Work (Food Serving, Portering, Valeting, and Related Activities)	105	507
"	Protecting and Related Work	79	427
"	Ushering, Messenger Service, and Related Work	106	509
.883	Driving-Operating	83	444
.884	Manipulating	39	322
.885	Tending	84	447
.886	Feeding-Offbearing	51	356
.887	Handling	52	360

TABLE 2

WORKER TRAIT GROUP ASSIGNMENTS BY VOLUME II PAGE NUMBERS

DOT II Pg. No.	WTG No.	DOT II Pg. No.	WTG No.	DOT II Pg. No.	WTG No.	DOT II Pg. No.	WTG No.	DOT II Pg. No.	WTG No.
226	1	276	24	347	47	406	70	479	93
228	2	278	25	349	48	408	71	482	94
230	3	280	26	351	49	411	72	484	95
232	4	282	27	354	50	413	73	486	96
234	5	287	28	356	51	416	74	488	97
237	6	289	29	360	52	418	75	491	98
239	7	291	30	371	53	420	76	493	99
241	8	294	31	373	54	422	77	496	100
243	9	296	32	375	55	425	78	499	101
245	10	299	33	377	56	427	79	501	102
248	11	305	34	379	57	430	80	503	103
250	12	308	35	381	58	433	81	505	104
252	13	310	36	383	59	435	82	507	105
254	14	312	37	385	60	444	83	509	106
256	15	319	38	387	61	447	84	511	107
258	16	322	39	390	62	461	85	514	108
261	17	333	40	392	63	464	86	516	109
263	18	335	41	394	64	466	87	519	110
265	19	337	42	396	65	468	88	522	111
267	20	339	43	398	66	471	89	524	112
269	21	341	44	400	67	473	90	526	113
271	22	343	45	402	68	475	91	528	114
274	23	345	46	404	69	477	92		